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June 29, 2006

Mr. Carl Starrett II
1941-C Friendship Drive
El Cajon, CA 92020

Subject: Trinity Presbyterian Church of Spring Valley – Expansion Project; Noise Analysis

County of San Diego Case Number:	P69-129W4
County of San Diego Project Name:	Trinity Presbyterian Church of Spring Valley
Project Address:	3902 Kenwood Drive; APNs 499-250-42, 43

References:

(1) County of San Diego, Department of Planning and Land Use letter to Carl H. Starrett, Case Number: P69-129W4, Project Name: Trinity Presbyterian Church of Spring Valley, dated May 28, 2004

(2) ARI Standard 275-97, Application of Sound Rating Levels of Outdoor Unitary Equipment

(3) Carrier Product Data, 38EYG (60 Hz), 12 Seer Heat Pump with Puron Refrigerant, Model 38EYG024-30

(4) EDAW letter to Mr. Carl Starrett, II, Subject: Trinity Presbyterian Church of Spring Valley – Expansion Project; Noise Analysis, dated September 15, 2004

(5) County of San Diego, Department of Planning and Land Use letter to Carl H. Starrett, Case Number: P69-129W4, Project Name: Trinity Presbyterian Church of Spring Valley, First Iteration Review of Initial Studies/Information, dated October 22, 2004

Dear Mr. Starrett:

This letter reports our noise analysis for the proposed operations related to the planned expansion at Trinity Presbyterian Church (Trinity Church) located at 3902 Kenwood Drive in the Spring Valley Community of San Diego County. This analysis includes the data from daytime noise monitoring, nighttime noise monitoring, 24-hour noise monitoring, and an analysis of the predicted noise from the equipment associated with the proposed expansion of the church.

Introduction to Revision 1, January 2005

Reference (1) requested a Noise Analysis Report for the proposed facility. Reference (4) provided the requested report. Reference (5) advised that County Staff has requested additional data and analyses to include information from all previous permits as well as a new application for permit modification, P69-129W5. This revised report is submitted in response to reference (5).

Introduction and Project Description

The proposed project is located at 3902 Kenwood Drive, in the Spring Valley Community of San Diego County, California (Figure 1). Trinity Church is proposing a phased development plan to replace some existing facilities and add new facilities. The existing site is shown in Figure 2 and the proposed development phased site plans are shown in Figures 3 through 5.

The County of San Diego, Department of Planning and Land Use (DPLU), in a letter of May 28, 2004, determined that, based on "… [p]reliminary review of the project information…there is insufficient information to determine whether equipment and operations onsite will exceed County Noise Standards … [t]he project site as well as adjacent land uses are zoned RS4 (Residential) that allows a one-hour average sound level of 50 dBA from 7 a.m. to 10 p.m. and 45 dBA from 10 p.m. to 7 a.m." As a result, the DPLU has required a noise analysis of the proposed project.

Phase I would include the relocation of the existing 5th and 6th grade classroom trailer (Trailer 1) approximately 40 feet southwest of it current location, the installation of an additional classroom trailer (Trailer 2) adjacent to the relocated 5th and 6th grade classroom, and the construction of a 5,880 square foot gymnasium, see Figure 3. Phase II would include the removal of the existing Ward Center trailers and construction of a new single story 3,240 square foot building to replace the Ward Center trailers, see Figure 4. Phase III would include the removal of both the classroom trailers and construction of a new 8,700 square foot Education Center, see Figure 5. Phase III will also include the construction of a columbarium. Neither the gymnasium (Phase I) nor columbarium (Phase III) would have HVAC units, or other mechanical equipment, anticipated to generate noise. The entire project is anticipated to be completed in 5 years from project initiation.

Applicable Regulations

<u>County Noise Element</u>

Policy 4b of the Noise Element of the General Plan sets a standard for exterior noise levels at noise sensitive areas of 60 dBA CNEL. A noise sensitive area is defined as, "the building site of any residence, hospital, school, library, or similar facility where quiet is an important attribute of the environment." If an acoustical study shows that noise levels would exceed the 60 dBA CNEL standard, then modifications should be made to the development to reduce the exterior noise level to 60 dBA CNEL or less. If such modifications are infeasible, then the project must be designed to provide interior noise levels of 45 dBA CNEL or less, and the project must be justified by overriding considerations. However, Policy 4b, Exemption 1 states:

> "For the rooms in "Noise Sensitive Areas", which are usually occupied only a part of the day (schools, libraries, or similar), the interior one hour average sound level, due to noise outside, should not exceed 50 decibels."

County Noise Ordinance

The County of San Diego Noise Ordinance (Noise Ordinance), Section 36.404 sets limits on noise generated from one property to another. Section 36.404 limits noise levels between properties zoned R-S to 45-50 dBA L_{eq} (1 hour), depending upon the time of day. Additionally, Section 36.404 states that "If the measured ambient noise level exceeds the applicable limit noted…, the allowable one hour sound level shall be the ambient noise level. The ambient noise level shall be measured when the alleged noise violation source is not operating."

Supplemental County Staff Requirements

Based on discussions with County Staff, the County currently requires that the net contribution from the proposed project at any noisy property line (high ambient level conditions) does not exceed by more than one decibel (dBA) the regulatory ambient sound level limit. A January 2004 discussion between Jim Kurtz of EDAW and John Bennett of County Staff confirmed that this requirement is to be interpreted as the combined noise level of the proposed project and the ambient noise shall not be more than one dBA higher than the ambient noise without the project. In order to meet this limit, the noise from the proposed project must be more than 4 dBA less than the ambient noise level. This requirement is considerably more restrictive than the requirement of the Noise Ordinance, which allows the noise from the proposed project to be equal to the ambient noise level.

Information and Data Collected

Basic project data, including proposed site plans for each phase, and manufacturer's noise level data sheets for the Carrier HVAC units, are attached as Exhibit 2. Additionally, per County request, manufacturer's specification sheets for existing HVAC units and other equipment associated with previous and concurrent permit modifications (P69-129W1 [W1], P69-129W2 [W2], P69-129W3 [W3], and P69-129W5 [W5]) are attached for information.

On August 23, 2004, between 1:30 p.m. and 4:00 p.m. and on September 9, 2004, between 2:30 a.m. and 4:00 a.m., EDAW Noise Specialist, Bill Maddux, conducted site visits to identify adjacent land uses, nearby sensitive receptors, and existing noise sources, and performed daytime (August 23) and nighttime (September 9) noise measurements. During the daytime site visit, it was observed that the principal source of noise at the site was traffic on State Route 94 (SR-94). The nighttime noise measurement period was selected based on hourly traffic data for SR-94 and State Route 125 (SR-125) in the vicinity of the project site. Hourly traffic volumes for the following locations and dates, obtained from Caltrans, were used to determine the lowest activity level on the subject roadways:

- SR-94, October 2003, Lemon Grove Avenue Trend Station;
- SR-94, September 2003, Avocado Boulevard Trend Station;

- SR-94, Extrapolated data developed from October 2003 and September 2003 count data for Lemon Grove Avenue and Avocado Boulevard, respectively; and,
- SR-125, September 2003, East Junction with SR-94.

Based on that data, the hours of 2:00 a.m. to 4:00 a.m. were determined to be the lowest traffic volume hours; thus, the quietest hours.

Comments from the County's first iteration review, Reference 5, required, in part, additional noise level measurements, which were conducted in January 2005, and a characterization of existing noise levels from traffic on SR-94. The 24-hour noise measurements were conducted on January 12th and 13th to characterize the weekday noise environments and on January 15th and 16th to characterize the weekend noise environment. During the 24-hour noise measurements on January 12th and 13th, short-term noise measurements of existing onsite noise sources were conducted. The result of the noise measurements are discussed in the following analysis.

Traffic data for SR-94 and SR-125 was obtained from Caltrans' Traffic and Vehicle Data Systems Unit including average daily and average peak hour volumes. A summary of this data is provided in Table 1. The vehicle mix; the ratio of automobiles, medium trucks, and heavy trucks; for existing conditions was taken from Caltrans' *2003 Annual Average Daily Truck Traffic on the California State Highway System*, which is summarized in Table 2. For future conditions vehicle a vehicle mix of 95 percent automobiles, 2.7 percent medium trucks, and 2.8 percent heavy trucks was provided by the County in reference 5. Vehicle speeds on SR-94 and SR-125 are assumed to be 65 miles per hour for purposes of analysis.

Table 1
Existing Traffic Volumes

Roadway	2003 Average Daily Traffic Volume	2003 Peak Hour Traffic Volume	Percent Peak Hour
SR-94	81,000	8,600	10.62
SR-125	135,000	12,700	9.41

Source: Caltrans, *2003 All Traffic Volumes on CSH*, 2004.

Table 2
Existing Traffic Mix

Roadway	Automobiles	Medium Trucks	Heavy Trucks
SR-94	95.00 %	2.84 %	2.16 %
SR-125	95.60 %	2.59 %	1.81 %

Source: Caltrans, *2003 Annual Average Daily Truck Traffic on the California State Highway System*, November 2004.

Site Description

The project site is currently developed with 24,789 square feet of religious and educational land uses (see Figure 2). The proposed project site is a combination of two parcels, APN 499-250-4200 and 499-250-4300, which are bounded by Kenwood Drive (the main surface street in the project area) to the east, and residential land uses to the north, west, and south. Traffic on SR-94 and SR-125 is visible from the northern and western portions of the site and traffic noise from SR-94 and SR-125 is audible throughout the project site.

In addition to the religious and education uses the site also contains three wireless communications facilities. All wireless facilities were approved by County as permit modifications W1, W2, and W3. The antenna for W1 is located within the attic of the sanctuary building and the equipment room is located immediately north of the sanctuary building. The only notable noise sources associated with W1 are two, west facing, wall mounted air conditioning units (HVAC) located on the west side of the equipment room (see Figure 6). The antenna for W2 is built into the main cross, which is located centrally on the site, and the equipment is located in four cabinets approximately 20 feet northwest of the cross (see Figure 6). The antenna for W3 is located in an artificial palm tree located west of the existing education building and approximately 150 north of W1. The equipment building for W3 is located immediately north of the artificial palm tree. The only notable noise source associated with W3 are the two roof mounted HVAC units atop the equipment room (see Figure 6). In addition to the existing wireless facilities, the County has recently received a new permit modification, P69-129W5 (W5), to install an emergency generator for the equipment room associated with W1. The emergency generator associated with W5 would be located immediately north of the equipment building for W1 (see Figure 6).

As previously indicated the proposed project would be developed over 5 years in three phases, see figures 2 and 3. Buildings of concern in Phase I include the relocated Trailer 1 and Trailer 2 as both of these structures will have associated HVAC. The new gymnasium will have passive venting but will not include any HVAC systems, or other notable noise source, such as a public address system. The trailers would be located adjacent to each other, oriented northwest to southeast along the long axis of the buildings, see Figure 2. The trailers would be cooled by four (4) electrically powered, externally mounted HVAC units, with two units on the southeast side of each trailer, see Figure 3. Phase I would require approximately 1 year to complete.

The Ward Center building constructed in Phase II would include two (2) HVAC units. Both HVAC units would be roof mounted 18 feet from the roof edge behind a 1.5-foot high parapet, see Figure 4. Phase II is anticipated to require 2 years to complete.

Phase III would require approximately 2 years to complete and would include the construction of an 8,728 square foot two story education center. The proposed Education Center would require eight (8) HVAC units, which would be located in two (2) groups of four (4) at the northwest and southeast ends of the building with approximately 12 inches

clearance from the building, see Figure 5. Additionally, a Mitsubishi condensing unit would be located on the southeastern end of the Education Center.

Adjacent Land Uses and Noise-Sensitive Receptors

The project site is bound on the east by Kenwood Drive and by residential land uses to the north, west, and south. The project site and all residential properties surrounding the project site are zoned R-S-7 with the exception of the two properties southeast of the subject property, which are zoned RS-3. All surrounding land uses are noise sensitive and share the same noise level standard under the County Noise Ordinance and County General Plan. In addition to the surrounding properties the majority of existing and proposed onsite land uses are considered noise sensitive, including the classrooms and sanctuary.

Existing Noise Sources

The existing site is currently used as a church and school. The church office is open Monday through Friday from 9:00 a.m. to 4:00 p.m. The church sanctuary is open Sunday through Saturday 9:00 a.m. to 4:00 p.m., with the greatest activity occurring Sunday between 8:30 a.m. and 12:00 p.m. According to church records 8 funeral services and 8 wedding services were conducted in 2004. The church's secretary stated that all weddings are scheduled for Friday evenings or Saturdays between 9:00 a.m. and 4:00 p.m. The majority of weddings occur on Saturdays; in 2004, 1 out of the 7 weddings occurred on Friday evening. While none of these events occurred during noise measurement periods, these events would be expected to generate noise levels similar to those experienced on Sundays during normal services. Additionally, the primary use area for weddings would be the same area used for normal services, i.e., the southern portion of the property. Funerals, however, occur on weekdays and weekends without any pattern but would likely generate less noise than other activities due to the nature of the event. While the church does not currently offer night school or late evening worship, Williams Hall is used for evening meetings 4 nights a week until 9:00 p.m. The school operates Monday through Friday 8:00 a.m. to 4:00 p.m., classes are in session from 8:30 a.m. to 3:00 p.m. Additionally, the church offers before- and after-school childcare from 7:00 a.m. to 5:00 p.m. No activities occur, and no onsite facilities are open, before 7:00 a.m. or after 9:00 p.m. A detailed schedule of existing and anticipated future activities, including typical attendance, is included as an attachment.

Existing daytime noise sources observed from the site included traffic on SR-94; SR-125; occasional car doors opening and closing, both on and off site; birds chirping in trees; dogs barking in the distance; children playing; existing onsite HVAC units; and aircraft flyovers. The dominant noise source affecting the entire site was traffic on SR-94 and SR-125. The centerline of SR-94 is approximately 800 feet northeast of the project site and the centerline of the SR-125/SR-94 interchange is approximately 1,900 feet to the northwest. The centerline of SR-125 is approximately 1,750 feet east of the western property boundary.

Existing nighttime noise sources observed from the site included occasional aircraft flyovers; traffic on SR-94; and traffic on SR-125. Generally, during quiet periods (low vehicular

activity), observed minimum noise levels along the western property line, the point closest to the SR-94 and SR-125 interchange, were in the 42 dBA L_{min} to 45 dBA L_{min} range. Minimum noise levels, during similar quiet periods, along the southern and northern property boundaries ranged between 36 dBA L_{eq} and 39 dBA L_{min}. During noisy periods, noise level increases were observed for passing cars and trucks on SR-94 (approximately 57-65 dBA L_{eq}). Individual trucks passed by approximately every 30-60 seconds.

Noise Measurements

On August 23, 2004, daytime noise measurements were taken from 1:30 p.m. to 4:00 p.m. The weather was slightly cloudy and warm (78 degrees Fahrenheit [78°F]) with wind speeds averaging 2.5 miles per hour (mph) and gusts up to 5.4 mph. The duration of each measurement was 15-30 minutes, which was adequate to provide confidence that the measurement was representative of a one-hour average. Instantaneous peak noise levels ranged from 68 to 93 dBA.

On September 9, 2004, nighttime noise measurements were taken from 2:30 a.m. to 4:00 a.m. The weather was clear and mild (65-75°F), with calm wind conditions (0.5 mph average). The duration of each measurement was approximately 30 minutes, which was adequate to provide confidence that the measurement was representative of a one-hour average. The highest instantaneous peak noise level, observed at the time of measurements, was on the order of 89 dBA.

Noise measurements on August 23rd and September 9th were conducted using a Larson Davis 712, Type 2 sound level meter. The sound level meter was set to 5 minute logging intervals.

In reference 5, the County requested that longer term measurements be conducted to characterize the project site due to the complexity and variability of the activities associated with the church and school. The County also requested additional information regarding existing noise sources associated with the W1, W2, and W3. In response to the County's request for longer term measurements, two 24-hour noise measurements were taken. The first measurement was taken mid week beginning Wednesday, January 12, 2005, at 3:30 p.m. and the second measurement was taken on the weekend beginning Saturday, January 15, 2005, at 7:45 p.m. Both 24-hour noise measurements were conducted using a Larson Davis 712, Type 2 sound level meter. The sound level meter was set to 15 minute logging intervals.

During the 24 hour noise measurement on January 12th and 13th, near field noise measurements were taken of the HVAC units associated with permit modifications W1 and W3. A noise measurement was taken of the equipment associated with permit modification W2, however, as previously mentioned; no notable noise was generated by the equipment cabinets. During the noise measurements on January 12th and 13th, temperatures were cool (55-65°F) during the daytime and cold (35-45°F) at night, winds were light with averages ranging from 2 to 4 mph. Temperatures on January 15th and 16th, were mild (65-75°F) during the daytime and cool (55-65°F) at night, winds were light with averages ranging from 2 to 5

mph. The near field noise measurements were conducted using a Larson Davis 824, Type 1 sound level meter. The sound level meter was set to 1 minute logging intervals.

Calculations and Results

Existing Conditions

EDAW reduced the noise measurement data to provide average (L_{eq}), maximum (L_{max}), minimum (L_{min}), and peak (L_{peak}) noise levels for each measurement location, as shown in Table 3, Table 4, and Table 5. Noise measurement locations are shown on Figure 2 and noise measurement data is provided in Exhibit 1.

During the August 2004 noise measurements, the daytime average ambient noise levels were found to be 51 dBA L_{eq} along the southern property line, 54 dBA along the northern property line and 61 dBA along the eastern property line. As all the noise levels measured along the property boundaries currently exceed the allowable limits defined in the County Noise Ordinance, these noise levels will be used to assess compliance with the County's Noise standards. As discussed previously, where the ambient noise level exceeds the County's standard, the new noise source cannot increase the cumulative noise level more than 1 dBA L_{eq}.

In addition to the August 2004 daytime ambient noise measurements, a measurement of an existing HVAC, Bard Model WA252B, was conducted. The measurement point was 5 feet above ground surface, 9 feet from the center of the unit. Based on this measurement, the Bard WA252B generates 65.5 dBA L_{eq} at 9 feet, this translates to approximately 50 dBA L_{eq} at 50 feet. The august 2004 daytime noise measurements are summarized in Table 3.

Table 3
Daytime Measured Noise Levels

Site ID	Location of Measurement	L_{eq}	L_{max}	L_{min}	L_{peak}
1	Eastern Property Line	61	70	57	92
2	Southern Property Line	51	64	46	85
3	Northern Property Line	54	72	48	92
4	9 feet southeast of Trailer 1 (One HVAC unit operating)	65.5	70	62	93

In September 2004, nighttime noise level measurements were made at the same locations as the August 2004 daytime measurements on the proposed project site with the exception of the HVAC noise measurement. While the night monitoring data, Table 4, shows the minimum hourly average noise level along the site's eastern boundary is 54 dBA, the minimum hourly average noise levels along the site's northern and southern property lines are below the 45-dBA standard. Therefore, the limiting noise level, for compliance with the County noise ordinance for nighttime activities, is 54 dBA L_{eq} along the western property line and 45 dBA

L_{eq} along the northern and southern property lines. As discussed previously, where the ambient noise level exceeds the County's standard, the new noise source cannot increase the cumulative noise level more than 1 dBA L_{eq}.

Table 4
Nighttime Measured Noise Levels - dBA

Site ID	Location of Measurement	L_{eq}	L_{max}	L_{min}	L_{peak}
1n	Eastern Property Line	54	65	42	81
2n	Southern Property Line	40	51	36	89
3n	Northern Property Line	42	51	36	57

The 24-hour noise level measurements were taken in a small unused garden located along the northern property line and approximately 100 feet west of the proposed location for the Education Center. The meter was located approximately 40 feet south of the northern property line. This site was chosen to assist in determining the compatibility of the proposed Education Center with the existing noise environment and to better characterize the noise environment of northern property line in the general area were impacts are most likely to occur. The January 2005 weekday and weekend 24-hour noise measurements are summarized in Table 5.

Table 5
24-Hour Noise Measured Levels – dBA

Date	Time	Hourly L_{eq}	Date	Time	Hourly L_{eq}
1/13/2005	0:00	54.1	1/16/2005	0:00	56.0
1/13/2005	1:00	52.8	1/16/2005	1:00	54.0
1/13/2005	2:00	50.8	1/16/2005	2:00	51.6
1/13/2005	3:00	52.1	1/16/2005	3:00	50.5
1/13/2005	4:00	55.4	1/16/2005	4:00	49.9
1/13/2005	5:00	58.5	1/16/2005	5:00	52.1
1/13/2005	6:00	62.0	1/16/2005	6:00	54.0
1/13/2005	7:00	59.7	1/16/2005	7:00	56.0
1/13/2005	8:00	59.1	1/16/2005	8:00	56.6
1/13/2005	9:00	55.6	1/16/2005	9:00	55.3
1/13/2005	10:00	55.9	1/16/2005	10:00	52.5
1/13/2005	11:00	55.9	1/16/2005	11:00	54.0
1/13/2005	12:00	57.3	1/16/2005	12:00	53.4
1/13/2005	13:00	58.1	1/16/2005	13:00	55.2
1/13/2005	14:00	62.7	1/16/2005	14:00	54.1
1/12/2005	15:00*	60.4	1/16/2005	15:00	55.2
1/12/2005	16:00	59.5	1/16/2005	16:00	57.8
1/12/2005	17:00	59.5	1/16/2005	17:00	59.5
1/12/2005	18:00	60.7	1/16/2005	18:00	58.8

Date	Time	Hourly L_{eq}	Date	Time	Hourly L_{eq}
1/12/2005	19:00	57.3	1/16/2005	19:00*	58.4
1/12/2005	20:00	57.1	1/17/2005	20:00	58.6
1/12/2005	21:00	55.6	1/17/2005	21:00	58.5
1/12/2005	22:00	55.7	1/17/2005	22:00	59.1
1/12/2005	23:00	55.0	1/17/2005	23:00	57.4
24-Hour L_{eq}		58.0	24-Hour L_{eq}		55.5
Daytime L_{eq}		58.5	Daytime L_{eq}		56.8
Nighttime L_{eq}		57.0	Nighttime L_{eq}		53.1
Minimum L_{eq}		50.8	Minimum L_{eq}		49.9
L_{max}		80.0	L_{max}		76.7
L_{min}		42.5	L_{min}		42.3
Daytime L_{min}		49.9	Daytime L_{min}		48.2
Nighttime L_{min}		42.5	Nighttime L_{min}		42.3
CNEL		63.6	CNEL		60.2

Notes:
* - Denotes hour is actually split over two days
Daytime = 7:00 a.m. to 10:00 pm
Nighttime = 10:00 p.m. to 7:00 a.m.

As shown in Table 5, while the project site is exposed to existing noise levels equal to, or in excess of, the County's exterior noise level standard of 60 dBA CNEL, the existing average weekday daytime noise level, 58.5 dBA L_{eq} is compatible with the proposed use. Additionally, while the more recent 24-hour noise level measurement data indicates ambient noise levels along the northern property line above the County's standard of 45 dBA L_{eq} and greater than those measured in September 2004, the lower average nighttime noise levels observed in September 2004 will continue to be used to determine compliance with the nighttime noise level standard. Similarly, the lower average daytime noise level observed in August 2004 will be used to determine compliance with the County's noise level standard.

Near field measurements were taken of the existing equipment associated with W1 and W3 on January 12,' 2005 and January 13, 2005. Noise measurements were conducted using a Larson Davis 824, Type 1, sound level meter and real time analyzer. The noise measurements are summarized in Table 6. Since the average noise level for these measurements represents the combined noise level from the background and the HVAC, the data was analyzed and the background noise was separated from the HVAC noise. Based on these noise measurements, each of the HVAC units associated with W1, ComPacII Model AVP60ACA00C-1000 C1, generate 76 dBA L_{eq} at 5 feet, which is roughly equal to 56 dBA L_{eq} at 50 feet. The HVAC units associated with W3, Carrier Model 50JS-060-301, each generate 68 dBA L_{eq} at 5 feet, which is roughly equal to 48 dBA L_{eq} at 50 feet. The proposed Education Center is located approximately 260 feet from W1 and approximately 220 feet from W3. Assuming all four HVAC units associated with W1 and W3 were operating at the same time, at these distances, with no intervening terrain or structures, the HVAC units associated with W1 and W3 would contribute 42 dBA L_{eq} and 35 dBA L_{eq}, respectively, and 43 dBA L_{eq} combined to the noise environment near the proposed Education Center.

However, due to the intervening terrain and structures these HVAC units are inaudible even during the quietest periods of the night near the proposed Education Center.

Table 6
Existing HVAC Measured Noise Levels - dBA

Site ID	Location of Measurement	L_{eq}	L_{max}	L_{min}	L_{peak}	HVAC L_{eq}	Background L_{eq}
4	5 feet from western face of ComPac II HVAC Unit (W2)	73.3	81.4	61.1	94.0	75.9	65.0
5	5 feet from western face of Carrier HVAC Unit (W3)	65.9	76.4	58.2	88.3	67.5	61.9

Traffic Noise

The existing peak hour traffic volumes and related data for SR-94 and SR-125 were used with the FHWA's *Highway Traffic Noise Prediction Model* (FHWA-RD-107-88) to estimate existing and future noise levels from area traffic. Intervening terrain was considered hard as the proposed project site has a direct line of site to the highways and the intervening terrain would have little affect on the propagation of noise from the traffic. The peak hour noise level from traffic on SR-94 is estimated to be 61 dBA L_{eq} at the northern property line and the noise level from traffic on SR-125 is estimated to be 59 dBA L_{eq} at the western property line. Traffic noise calculation sheets are attached as Exhibit 4. The proposed Education Center would be located approximately 250 feet east of the western property line and approximately 100 feet south of the northern property line. At this location the combined peak hour noise level from SR-94 and SR-125 is approximately 63 dBA L_{eq}. By 2030, average daily traffic volumes on SR-94 are anticipated to increase by approximately 63 percent to 129,000 vehicles and traffic on SR-125 is anticipated to increase by approximately 34 percent to 181,000, which would increase the combined noise levels by approximately 2 dBA. Based on the 24-hour weekday measurements the proposed project site, and in particular the location of the proposed Education Center, is currently exposed to an average daily noise level of 59 dBA L_{eq}, thus the 2 dBA increase by 2030 would result in an average daily noise level of 61 dBA L_{eq}. The proposed Education Center would be constructed of standard building materials that would offer at least 15 dBA of noise reduction. Thus, traffic noise levels within the proposed Education Center would be reduced below 50 dBA and the proposed Education Center would be compatible with the future noise environment. Table 7 summarizes anticipated average daily noise level increases in 2010, 2020 and 2030.

Table 7
Future Traffic Noise Levels

Roadway	Existing Traffic Volume	Existing Noise Level L_{eq}	2010 Traffic Volume	2010 Noise Level L_{eq}	2020 Traffic Volume	2020 Noise Level L_{eq}	2030 Traffic Volume	2030 Noise Level L_{eq}
SR-94	81,000	61	89,000	61	108,000	62	129,000	63
SR-125	135,000	59	154,000	60	154,000	60	181,000	60

Based on 24-traffic counts conducted by Caltrans in April 2004, the weekend average daily traffic volumes on SR-94 are approximately 26 percent less than average weekday traffic volumes. Similarly, Caltrans conducted traffic counts on SR-125 in January 2003, and that data indicates weekend average daily traffic volumes on SR-125 are approximately 20 percent lower than weekday average daily traffic volumes. These lower volumes would result in average noise levels approximately 1 dBA lower than those observed during the weekday. On both freeways, Sunday volumes are approximately 30 percent lower than the average weekday volumes. A 30 percent decrease in traffic volumes would reduce traffic generated noise levels by approximately 1.5 dBA. Thus, weekend traffic noise levels are estimated to be approximately 1 dBA lower than average weekday traffic noise levels. As the proposed project is compatible with weekday daytime traffic noise levels, it would be compatible with the lower weekend traffic noise levels as well.

Several existing buildings associated with the church and school have HVAC systems including Trailer 1, the church offices, the sanctuary, Williams Hall, the existing Ward Center, and the Christian Education building (see Figure 6). The existing HVAC unit on Trailer 1 was barely perceivable over background noise at distances greater than 50 feet from the unit. Noise measurements of one of the HVAC unit attached to Trailer 1 are presented in Table 3. The HVAC units for the Ward Center were not operating during site surveys. However, both existing HVAC units for the Ward Center would be removed as part of Phase II, prior to the installation of the new HVAC units associated with the proposed Ward Center building. The existing classroom building has 6 HVAC units with 3 units (Carrier Model 38EZG-030-500) located at the western end of the building and 3 (1 Carrier Model 38EYG-024-300 and 2 Carrier Model 38EZG-060-500) units located at the eastern end of the building. In addition to the 3 HVAC units located at the eastern end of the building, there is a Mitsubishi, “Mr. Slim” (Model PU36EK2), condescending unit. None of these units were operating during site visits; however, the manufacturer’s specification sheets have been obtained and are attached as Exhibit 2 and the noise level data presented therein is summarized in Table 8. The HVAC units on the eastern end of the Christian Education building are surrounded by a four (4) foot high wood fence, which acts as a noise barrier for these units. Using the ARI methodology, as defined in ARI Standard 275-97, see Exhibit 3, the location factor of a single solid surface within 10 feet would in increase the noise level of each unit by 3 dBA. Noise attenuation is determined by finding three factors, the shielding factor, the source path factor, and the distance factor. As all points of evaluation are located

outdoors, the source path factor would be 0. The intervening fence provides approximately 5 dBA attenuation for each HVAC unit. The distance factor is determined by the straight-line distance from the center of the HVAC unit to the point of evaluation, which, in this case, is on the property line 5 feet above ground level. The distance from the center of the HVAC unit to the point of evaluation provides 41 to 42 dBA attenuation. Thus, the 3 existing HVAC units and the condensing unit on the western side of the Christian Education building are estimated to generate 40 dBA at the northern property line. Calculation sheets for the HVAC units associated with the Christian Education building are attached as Exhibit 5.

The church office building has two (2) roof mounted HVAC units that are visible from the central court yard. During noise measurements on January 12th these units were operating and were indistinguishable from background noise beyond the court yard. The sanctuary's HVAC unit is located below the sanctuary and was indistinguishable from background noise at less than 50 feet. The Williams Hall HVAC equipment is located in an equipment room on the northern end of the building and was inaudible at the door of the equipment room.

Table 8
Noise Levels from Manufactures Specification Sheets

	Reference dBA	Reference Distance (feet)	dBA at 50 feet
Mitsubishi $PU36EK_2$	55	3.3	31
Carrier 38EYG-024-300	76	3	45
Carrier 38EZG-030-500	77	3	46
Carrier 38EZG-060-500	80	3	49

During noise measurements, one HVAC unit installed under W1 was operating. The HVAC unit was operational for a total of approximately 30 minutes each hour in 5 minute on and 5 minute off cycles generating a constant noise level of 76 dBA at 5 feet during each interval. During periods of higher ambient temperatures, such as mid-summer, it is likely both these units would operate more continuously. As with W1, only one HVAC unit installed under W3 was operating. The HVAC unit associated with W3 also operated approximately 30 minutes in an hour; however, it operated in two 15 minute intervals generating a constant 62 dBA at 5 feet. The equipment rooms associated with W1 and W3 did not generate any perceptible noise. Similarly, the equipment cabinets associated with W2 did not generate any perceptible noise and no HVAC unit is associated with W2.

In addition to mechanical equipment and traffic noise, several activities occur through out the day and week, such as school activities, children playing, and religious services. Classroom activities are generally quiet and during site visits no significant noise was generated from these activities. Children playing can generate peak noise levels of +80 dBA within a few feet when yelling or screaming occurs. However, noise measurements taken at the project

site show average noise levels on the order of 58 dBA $L_{eq(15min)}$ at 20 feet from the playground's eastern fence line.

Noise is generated by people accessing and using the site for educational, daycare, and religious activities. The primary noise sources of concern associated with these activities are related to parking lot activities. Typical parking lot noises are identified in Table 9. These noise levels represent maximum noise levels from single events which typically only last a few seconds and generally do not substantially affect ambient noise levels. It should be noted that the parking that is currently available approximately 50 feet from the northern property line would be removed as part of Phase III, and the nearest future parking would be approximately 100 feet from the northern property line on the southern side of the Education Center with no direct path to the northern property line. The proposed project would not modify existing parking areas anywhere else onsite, except near the proposed Ward Center building where 12 parking stalls would be removed and not replaced. At 100 feet an automobile passing by would generate approximately 43 dBA, a 1 second car door slam would generate 60 dBA, and a tire squeal would generate 64 dBA. Assuming a car door slam last approximately 1 second and the hourly ambient noise level is 45 dBA L_{eq}, at 100 feet a car door slam would increase the ambient noise level by 0.1 dBA L_{eq} and a tire squeal lasting the same amount of time at the same distance would increase the ambient noise level by 0.4 dBA L_{eq}. If the ambient noise level is 50 dBA L_{eq} the door slam would not increase the ambient noise level and the tire squeal would increase the ambient noise level by approximately 0.1 dBA.

Table 9
Estimated Parking Lot-Related Noise Levels

Source	Reference Sound Level	Reference Distance	Sound Level @ 50 ft.
Automobile at 14 mph	50	50	46 dBA
Door Slam	70	25	66 dBA
Tire Squeal	80	10	70 dBA

Source: Los Angeles Sports and Entertainment District Final Environmental Impact Report, SCH #: 2000091046, March 2001

Typical weekday parking lot activity is greatest on the northern portion of the project, in the areas around the school facilities, with the peak activity periods occurring between 8:00 a.m. and 8:45 a.m. and between 2:45 p.m. and 3:15 p.m. as children are dropped off at the school in the morning and picked up in the afternoon. Secondary, and much less intense, periods occur in the same general location around 7:30 a.m. and between 5:15 p.m. and 5:30 p.m. as the children at daycare are dropped off in the morning and picked up in the evening. During observation only 1 person from the daycare staff and 1 person for the Ward Center arrived prior to 7:00 a.m. The activities of these 2 people did not affect hourly noise levels. During evening observations, evening classes/meetings ended prior to 9:00 p.m. and all people using the site had departed before 9:30 p.m. On the weekend, the primary area of activity is in the

southern portion of the lot near the sanctuary and Williams Hall. The primary weekend activity begins prior to normal services, between 10:00 a.m. and 10:30 a.m., and after Sunday school and services, between 11:45 a.m. and 12:15 p.m., as people arrive and depart on Sunday. Individual vehicles entering and exiting the site generated single event pass by noise levels of 40-50 dBA at 50 feet, and did not discernibly increase the hourly ambient noise levels, which were largely dominated by traffic on SR-94 and SR-125. Saturdays have little formal activity other than sporadic weddings and funeral services. The frequency and intensity of these activities would not be increased due to the proposed project as the proposed project would not increase availability or change the function of exiting uses associated with the church.

In addition to the existing noise sources the County in reference 5 requested an evaluation of another pending permit modification submitted by Verizon wireless, W5. W5 seeks to add an emergency generator immediately north of the equipment room associated with W1, see Figure 6. According to W5, the propose generator would be a Generac Power Systems, S030 or SD035. Sound level data is not provided in the generator's specification sheets, however, Tad Lee, a representative for Generac's local dealer, Power Plus, stated that the SD030 and SD035 generate 92 dBA at 10 feet. Additionally, Mr. Lee indicated that sound enclosures could be installed to achieve a 12 to 26 dBA attenuation. Based on the location information provided in W5, the proposed generator would be approximately 56 feet west of the eastern property line. At this distance the generator would generate approximately 77 dBA at the northern property line perpendicular to the generator. The proposed generator would be approximately 330 feet from the proposed Education Center and approximately 40 feet from the existing Christian Education building. Emergency generators do not generally operate continuously, except during emergencies, and typically are only operated once per week for testing, usually 15 to 30 minutes. This would reduce the noise levels 3 to 6 dBA L_{eq} to 74 dBA for 30 minute testing and 71 dBA for 15 minute testing. Using 74 dBA as the worst case scenario, at 40 feet noise levels are approximately 62 dBA and 44 dBA at 330 feet. Thus, while the generator would exceed allowable noise level limits at the western property line, noise from the proposed generator would not be anticipated to adversely affect the proposed uses. The western property line is approximately 56 feet from the generator, and at this distance the noise levels from the generator are approximately 59 dBA.

Proposed Project and Noise Impacts

As previously discussed the proposed project would be developed in three phases. Phase I is anticipated to be completed in one (1) year (2006) and would involve relocating a trailer, installing a new trailer and building a gymnasium. The gymnasium would not have any HVAC units or other mechanical equipment that requires an acoustical analysis, such as public address systems. The two trailers will however have HVAC units that require analysis. Phase II is anticipated to require approximately two (2) years complete and would involve the removal the existing Ward Center trailers and the construction of a new single story building with two (2) roof mounted HVAC units. Phase III is anticipated to require an additional two (2) years complete and would involve the removal of the two classroom trailers and construction of a new two story Education Center building. The new Education

Center building would require eight (8) HVAC units, which would be located at the northwestern and southeastern ends of the building. In addition to the HVAC units, the proposed Education Center would have an exterior ground mounted condensing unit similar to the one at the existing Christina Education building. All other mechanical equipment, such as furnaces and fans, would be located within the building and would not generate noise outside the structure.

Based on conversations with Carl Starrett, Trinity Church's representative, and Milton Burgess, the project manager for the Trinity Church expansion, neither the existing uses nor the proposed project allows, or would allow, events or activities after 10:00 p.m. or before 7:00 a.m. A schedule of existing and proposed operation is attached as Exhibit 6. Additionally, all HVAC units onsite are currently controlled by automatic timers that prevent operation of the HVAC units before 7:00 a.m. of after 9:00 p.m. A list of the locations of these timers and the models numbers are attached as Exhibit 7. In general, the older portions of the church, such as the offices, sanctuary, and Williams Hall, have dial timers that are set by the users of the facility for the length of time they would be using the facility and shut off the HVAC units when the time runs out. The school however, uses programmable thermostats that are locked behind plastic covers. These thermostats are preprogrammed to allow the HVAC units to operate from 8:00 a.m. until 3:00 p.m., Monday through Friday and from 8:00 a.m. to 12:00 p.m. on Sundays. Similar devices as those used in the school would be installed and used to control the new HVAC units associated with proposed expansion.

New Equipment Description

The classroom trailers will include the following equipment that will generate noise:

- Four (4) HVAC units, Bard Model WA252B. There will be one pair of units for each of the two buildings. The HVAC units will each serve individual classrooms. Thus, all four HVAC units may operate at the same time. Bard does not have sound pressure data for any of its units, and conversations with technical personnel at Bard indicate that no data would be available in the foreseeable future. Thus, noise level data for the Bard Model 252B used in this analysis are based on measurements taken on August 23, the Bard Model WA252B HVAC units generate 50 dBA L_{eq} at 50 feet.

The Ward Center Building will include the following equipment that will generate noise:

- Two (2) HVAC units, Carrier Model 38EYG024-30. Both of these units will be roof mounted 18 feet from the roof edge. Some shielding of the HVAC units would be accomplished by construction of a 1.5 foot high parapet wall along the edge of the roof. Specifications for the Carrier Model 38EYG024-30 are provided in Exhibit 2.

The Education Center would include the following equipment that will generate noise:

- Eight (8) HVAC units, Carrier Model 38EYG024-30. The 8 units will be divided into two groups of 4 with one group located at the northwestern end and one group located at

southeastern end of the Education Center building. All of these units will be ground mounted side by side, 36 inches on center, with a minimum of 12 inches between the building and the HVAC unit, see Figure 7.

Noise Generated from Operation

HVAC unit noise levels are assumed to be constant with little variation (no peak noise levels). Therefore, noise levels presented in the attached specification sheets would represent the average hourly noise level for the HVAC units. The primary difference in the available data is the format in which it is presented. The Bard data is presented in noise level at a specific distance, i.e. 50 dBA at 50 feet. While the data for the Carrier HVAC units is presented as the ARI standard noise level, as defined in ARI Standard 270, and noise levels are calculated using methodology identified in ARI Standard 275, see Exhibit 3.

Phase I

The hourly average noise level for each Bard HVAC unit would be 50 dBA measured at a distance of 50 feet. For purposes of determining potential noise level increases the two side-by-side units on each building are combined at the source, and the distance to the receiver is determined from the center of the two units. Thus, the combined noise level of the two units at 50 feet would be 53 dBA L_{eq}. The shortest distance to the northern property line from the Trailer 1 HVAC units is 133 feet. At this location, the line of sight between the HVAC units and the property line is broken by the trailer, which would provide 3-4 dBA of attenuation. The two HVAC units on Trailer 1 would generate approximately 44 dBA at property line without shielding. The shortest distance to the northern property line from the Trailer 2 HVAC units is 164 feet. Due to similar positioning as Trailer 1, the line of sight between the HVAC units and the property line is broken by the trailer, which would provide 3-4 dBA of attenuation. The two HVAC units on Trailer 2 would generate approximately 43 dBA at property line without shielding. The shortest common distance between the HVAC units mounted on Trailers 1 and 2, where neither set of HVAC units would be shielded, would be located approximately 95 feet west of the eastern property line along the northern property boundary. At this point, the HVAC units on Trailer 1 and 2 are 174 feet and 185 feet from the property line, respectively. The combined noise level from all units without shielding would be 45 dBA L_{eq} at the property line. Calculations for Phase I are presented in Exhibit 8.

Phase II

Two Carrier HVAC units would be mounted on the roof of the Ward Center building. For purposes of this analysis the northern most unit will be called Unit 1 and the southern most Unit will be called Unit 2. The location of the Carrier HVAC units and their relationship to the roofline and property line is shown in Figure 8. According to the manufactures specification sheets, the standard sound power rating is 76 dB. Using the ARI methodology, as defined in ARI Standard 275-97, the location factor of a single solid surface within 10 feet would in increase the noise level to 79 dBA. Noise attenuation is determined by finding three factors, the shielding factor, the source path factor, and the distance factor. As all points of

evaluation are located outdoors, the source path factor would be 0. However, the roof and parapet act as shielding, which, based on calculations provided in Exhibit 9, provides 10 dB of attenuation for Unit 1 and 12 dB attenuation for Unit 2. The distance factor is determined by the straight-line distance from the center of the HVAC unit to the point of evaluation, which, in this case, is on the property line 5 feet above surface level. The distance from the center of the HVAC unit to the point of evaluation provides 27 dB attenuation for Unit 1 and 25.5 dB of attenuation for Unit 2. Calculation sheet are provided in Exhibit 9. Based on these calculations, Unit 1 would generate 42 dBA L_{eq} at the eastern property line and Unit 2 would generate 42 dBA L_{eq} at the southern property line. The combined noise level at the property line for these two units would be 45 dBA L_{eq}.

Phase III

Phase III would remove both Trailers 1 and 2 and associated HVAC units and construct a new Education Center building. The new Education Center would require eight HVAC units and one condensing unit. All units would be ground mounted, with four HVAC units located on the northwest side of the building (Group 1) and four located on the southeast side along with the condensing unit (Group 2). At each end of the building the HVAC units would be lined up side-by-side, 36 inches on center, with 1-foot clearance from the building.

Within Group 1, the HVAC units are 72 feet, 75 feet, 78 feet, and 81 feet south of the northern property line, respectively. As all units are within 10 feet of a reflective surface, i.e., the Education Center, the reference noise level is increased by 3 dB. None of these units gain any benefit from the source path as the receiver locations are outdoors. The unit nearest the property line does not receive and shielding, however, due to the arrangement of the HVAC units, all other units are shielded by the unit in front of it (see calculations in Exhibit 5). These units receive a shielding factor 8 dB when all units are assessed in a parallel row. However, the HVAC units in Group 1 are aligned at an angle to the property line in such a way that sound from each unit has a direct path to the northern property line at 72 to 80 feet distant, thus, none of these HVAC units receive any shielding form the building or from other HVAC units. At this distance the combined unshielded noise level from Group 1 at the property line would be 50 dBA $L_{eq.}$

Group 2 is oriented similar to Group one on the other end of the Education Center. The HVAC units in Group 2 are 113 feet, 117 feet, 120 feet and 124 feet south of the property line, respectively. All units with Group 2 are within 10 feet of a reflective surface and the reference noise level is increased by 3 dB. None of these units gain any benefit from the source path as the receiver locations are outdoors. The unit nearest the property line does not receive and shielding, however, due to the parallel row arrangement of the HVAC units, all other units are shielded by the unit in front of it (see calculations in Exhibit 6). These units receive a shielding factor 8 dB. At this distance and orientation the combined noise level from Group 2 at the property line would be 42 dBA L_{eq}. The nearest point all HVAC units in Group 2 have a direct path to a property line is perpendicular the units along the eastern property line. The units are between 127 feet and 130 feet from the eastern property line. At these distance the combined noise level from all four units is estimated to be 45 dBA L_{eq}.

Due to shielding by the building and the distance between the two groups of HVACs neither group would substantially increase noise generated by the other group at the property line.

Property Line Noise Levels

Table 9 shows the ambient and estimated noise levels at the nearest property line due to the operation of the proposed expansion. Other existing noise sources, such as those associated with W1, W3, and the Christian Education building, would not contribute sufficient noise levels to affect the ambient noise levels shown in Table 9. As shown in Table 9, new noise sources associated with the proposed expansion would not exceed the County's noise ordinance daytime noise level limits. However, Group 1 is estimated to increase noise levels along the northern property by 2 dBA L_{eq} over the ambient noise level, which currently exceeds the daytime standard. While Group 1 would comply with the prima facia daytime noise level standard of the Noise Ordinance, the County's additional standards indicate that since the ambient noise level already exceeds the standard the project can not increase noise levels by more than 1 dBA L_{eq}. Therefore, the noise form the HVAC units must be attenuated. Noise generated by the HVAC units may be attenuated by use of sound hoods/blankets or by construction of a noise barrier. Sound hoods/blankets available from Carrier would reduce the sound produced by each HVAC unit by 2 dBA, which would reduce the combined noise level from Group 1 to 48 dBA L_{eq} and raise the ambient noise level by only 1 dBA L_{eq}. A solid wall constructed along the northwestern end of the building in an "L" shape, as shown in Figure 7. The wall would need to be 5 feet high and would need to extend 1 foot beyond the last HVAC unit. With the installation of this barrier noise levels are anticipated to be reduced by approximately 10 dBA L_{eq} resulting in a combined noise level at the northern property line of 40 dBA L_{eq}.

Operation of the HVAC units associated with the proposed expansion would exceed the County's noise ordinance nighttime noise level limits except for the units associated with the Ward Center along the western property line.. However, as previously discussed Trinity Church and the associated education facilities do not currently, and would not in the future, operate past 10:00 p.m. or prior to 7:00 a.m. and all HVAC units will have automatic timers that would prevent operation of the HVAC units from operating after 9:00 p.m. or prior to 7:00 a.m. Therefore, the appropriate noise level limit is daytime standard, and the project would not violate this standard.

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Table 9
Property Line Noise Calculations

Source Location	Evaluation Point	Shortest Distance to Property Line	Reduction Due to Distance	Reduction Due to Shielding	Noise Level at Property Line	Ambient Nose Level at Property Line Day (Night)	Combined Noise Level
Phase I							
Trailer 1	Northern Property Line	135	9	0	44	54 (42)	54 (46)
Trailer 2	Northern Property Line	165	10	0	43	54 (42)	54 (46)
Trailer 1 & 2	Northern Property Line	170	11	0	45	54 (42)	55 (47)
	Northern Property Line	170	11	0		54 (42)	
Phase II							
Ward Building Unit 1	Eastern Property Line	33	28	10	41	61 (54)	61 (54)
Ward Building Unit 2	Southern Property Line	27	26.5	11	42	61 (54)	61 (54)
Ward Building Units 1 & 2	Eastern Property Line	34	28	10	45	61 (54)	62 (55)
		33	28	10		61 (54)	
Phase III							
Education Center Group 1	Northern Property Line	71	34.5	0	50	54 (42)	56 (51)
	Northern Property Line	75	35	0		54 (42)	
	Northern Property Line	78	35	0		54 (42)	
	Northern Property Line	82	35.5	0		54 (42)	
Education Center Group 2	Northern Property Line	113	38.5	0	42	54 (42)	54 (45)
	Northern Property Line	117	39	8		54 (42)	
	Northern Property Line	120	39	8		54 (42)	
	Northern Property Line	124	39.5	8		54 (42)	
Education Center Group 2	Western Property Line	127	39.75	0	45	54 (42)	55 (47)
	Western Property Line	128	39.75	0		54 (42)	
	Western Property Line	129	40	0		54 (42)	
	Western Property Line	130	40	0		54 (42)	

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Conclusions

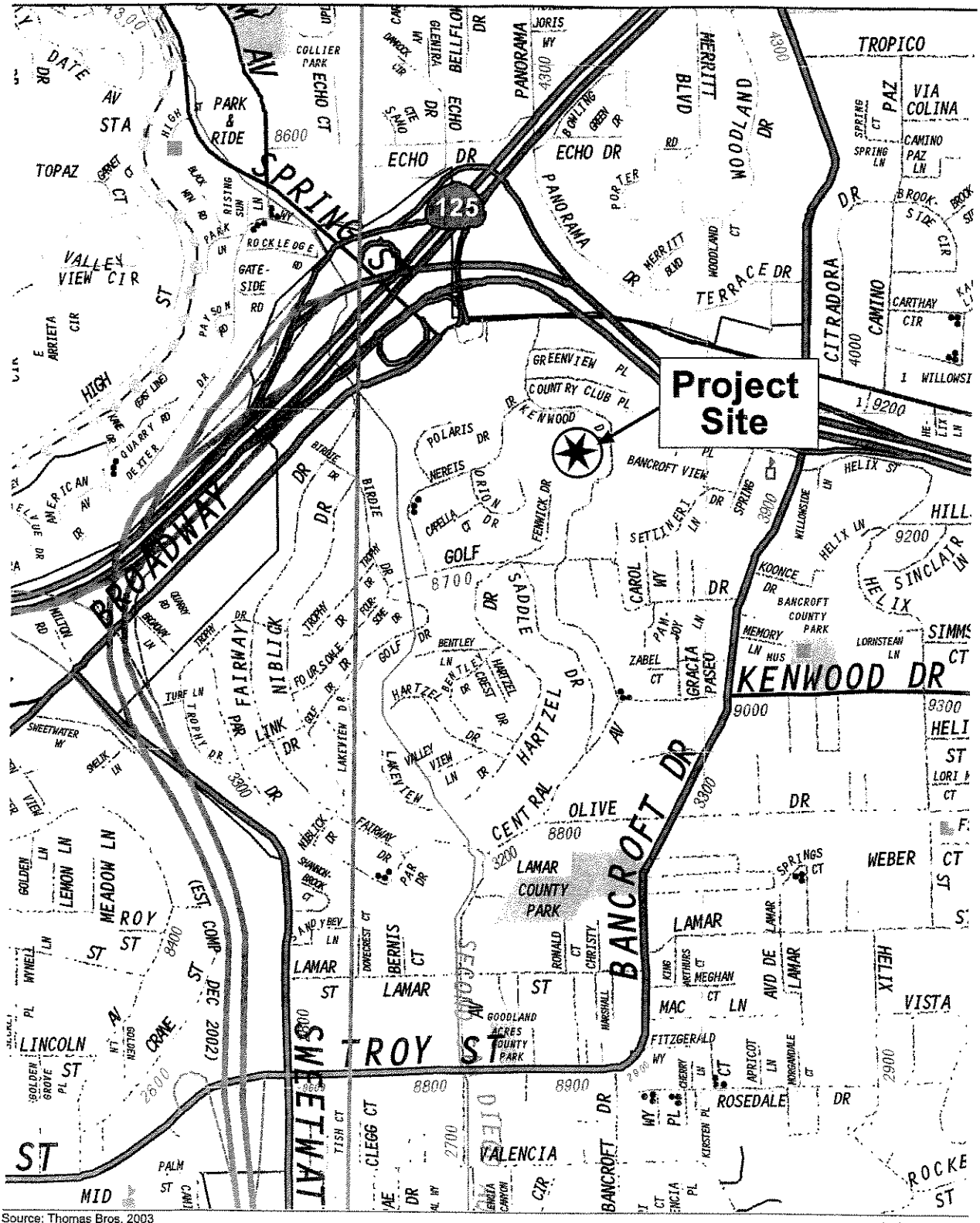
As shown in Table 9 the proposed expansion of Trinity Church would not generate noise levels in excess of the daytime noise level limits. However, the project would result in an increase of more than 1 dBA L_{eq} along the northern property line due to the operation of HVAC units at the western end of the Education Center. Thus, all 4 HVAC units along the northwestern end of the proposed Education Center will have sound hoods/blankets installed that reduce noise levels at each unit by 2 dBA. The proposed project would not have nighttime operations and would not be subject to the County's nighttime noise level limits. Therefore, the operation would be in compliance with the County noise ordinance. As shown in Table 9, noise levels due to operation would be at least 4 dBA L_{eq} below the daytime ambient noise levels, and thus, would result in a less than 1 dBA L_{eq} noise level increase at any of the identified points along the property line. The small increase in noise due to the proposed project would not produce excessive noise nor result in a harmful effect upon the character of the area.

This report was prepared by Bill Maddux and reviewed and approved by Jim Kurtz. If you have any questions, please call either of us at (619) 233-1454.

Sincerely,

James P. Kurtz
County of San Diego Certified Acoustical Consultant

Attachments:
Exhibit 1 – Noise Level Measurements
Exhibit 2 – Carrier Model 38EYG024-30 Specification Sheets
Exhibit 3 – ARI Standard 275-97
Exhibit 4 – Traffic Calculation Sheets
Exhibit 5 – Existing Noise Source Calculations
Exhibit 6 – Operation Schedule
Exhibit 7 – Automatic Timers and Thermostats
Exhibit 8 – Phase I – Stationary Source Calculation Data
Exhibit 9 – Phase II – ARI Sound Level Calculation Data
Exhibit 10 – Phase III – ARI Sound Level Calculation Data



Source: Thomas Bros. 2003

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Figure 1
Project Site Map

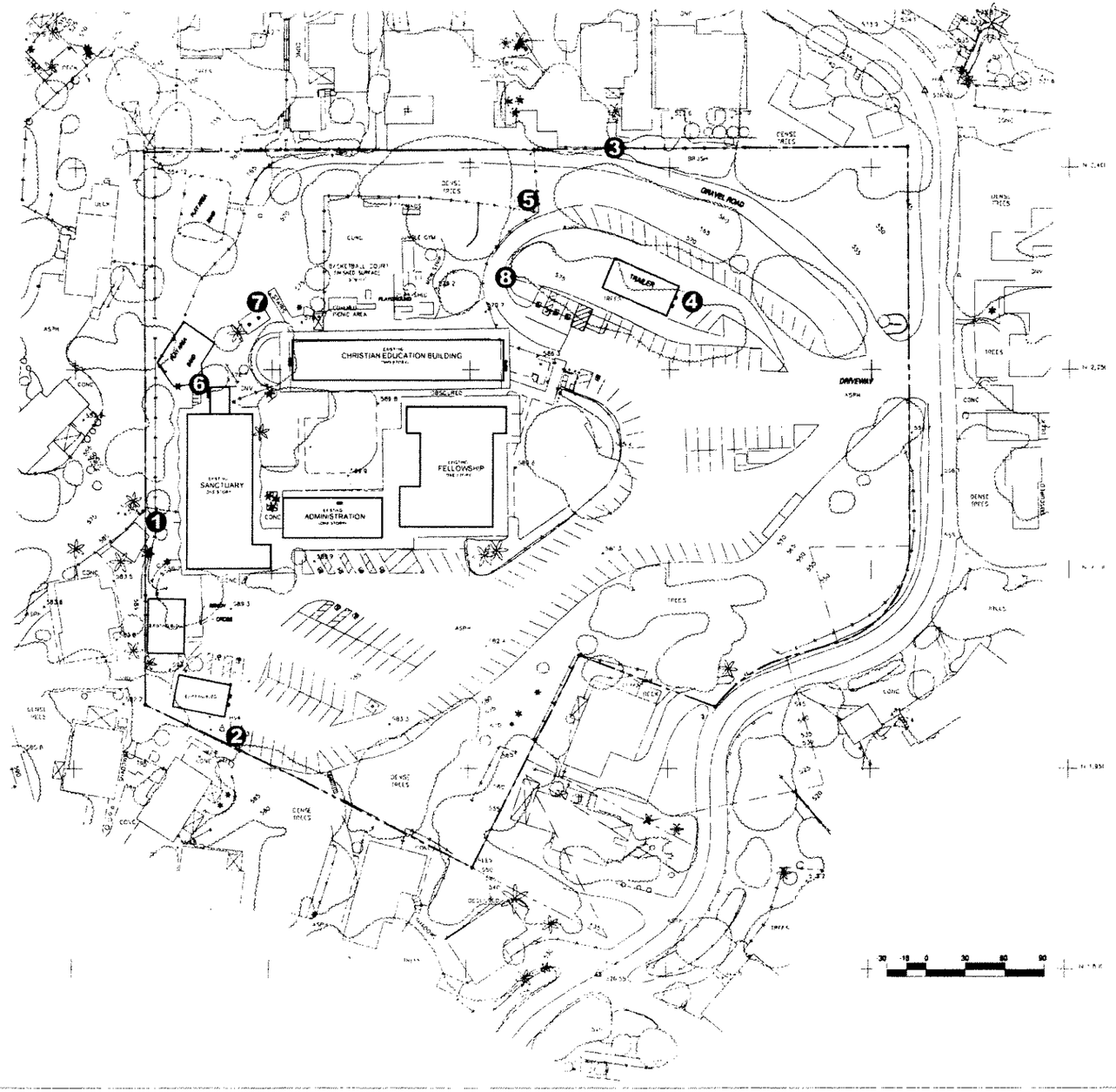
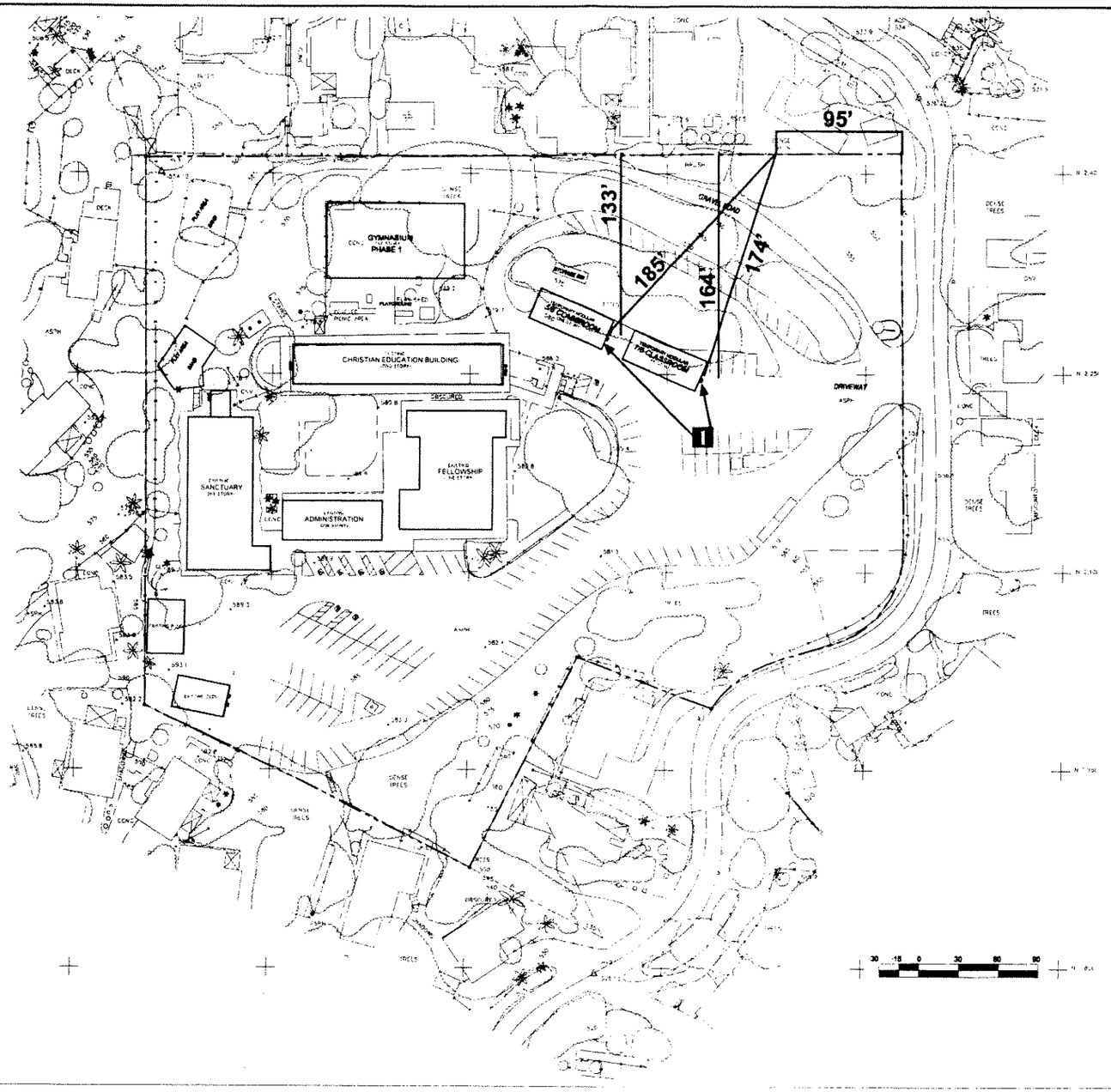
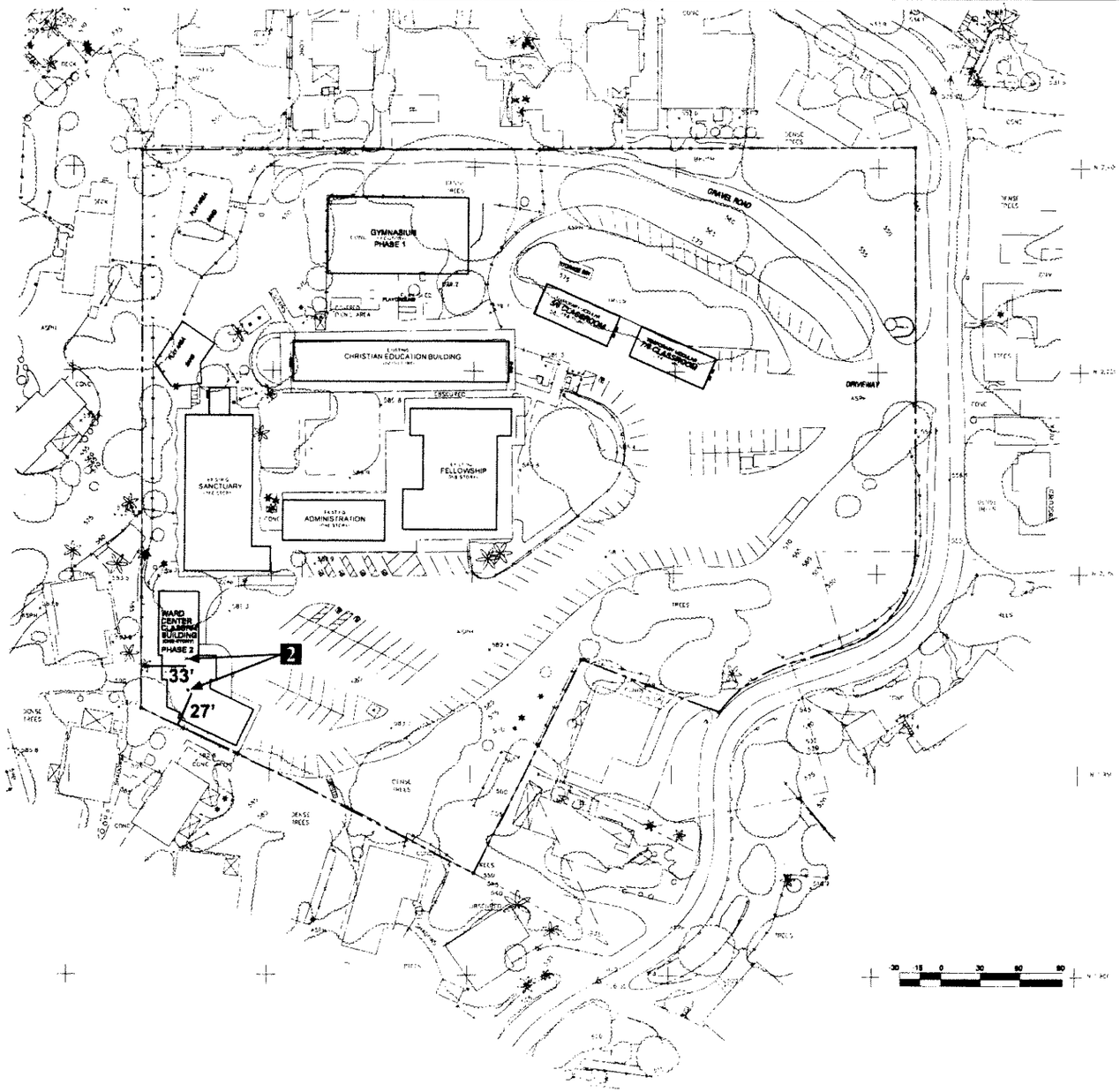


Figure 2
Existing Site and Noise Measurement Locations



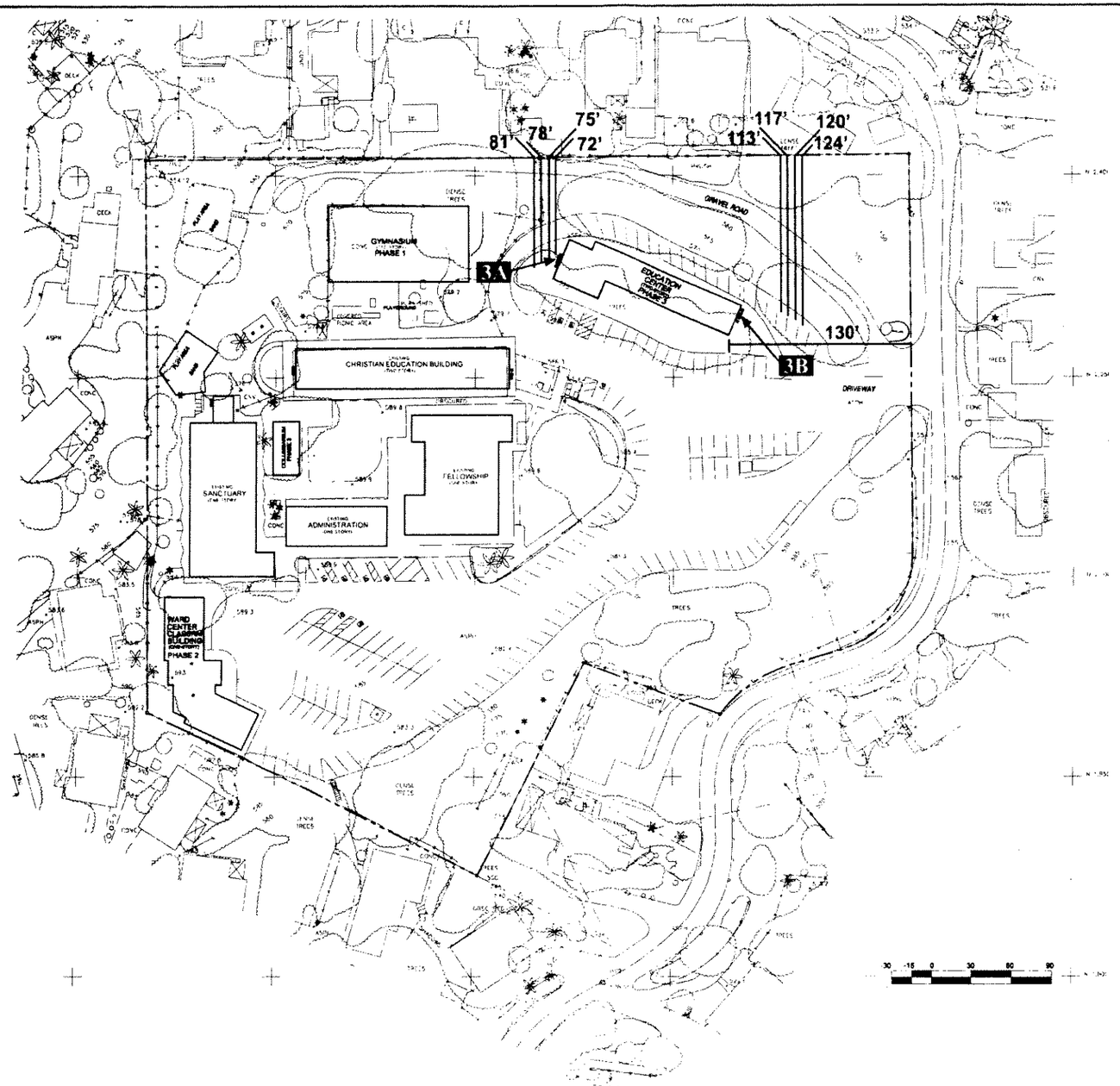
1	MAKE:	MODEL:	LOCATION:	QTY:
	BARD	WA252B	5' ABOVE GROUND	4

Figure 3
Phase I



2	MAKE:	MODEL:	LOCATION:	QTY:
	CARRIER	38EYG	ROOF	2

Figure 4
Phase II



	MAKE:	MODEL:	LOCATION:	QTY:
3A	CARRIER	38EYG	GROUND	4
3B	CARRIER	38EYG	GROUND	4
	MITSUBISHI	PU36EK	GROUND	1

Figure 5
Phase III

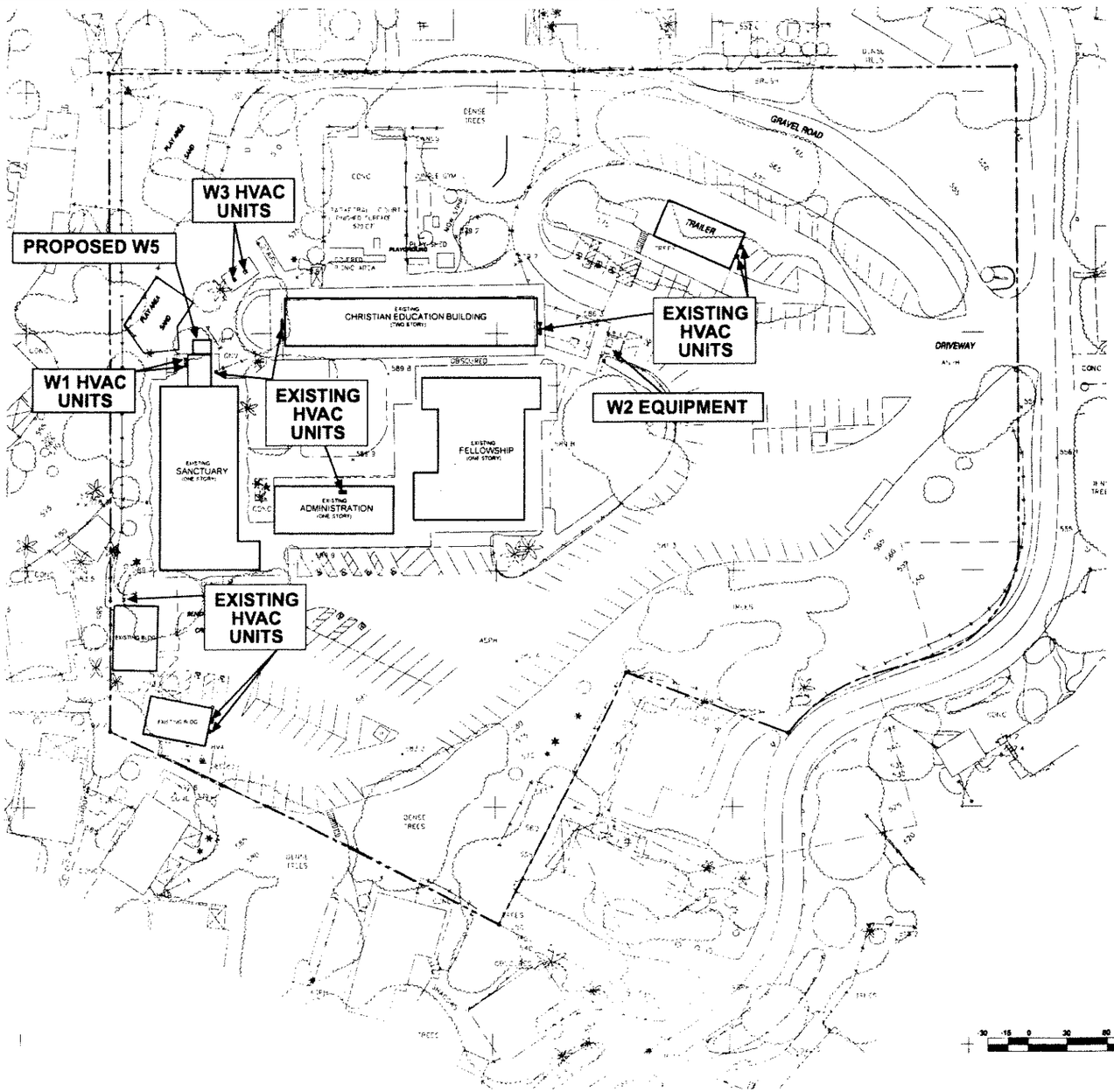
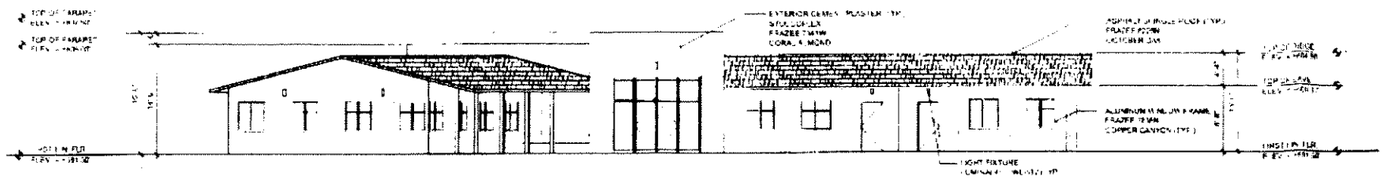
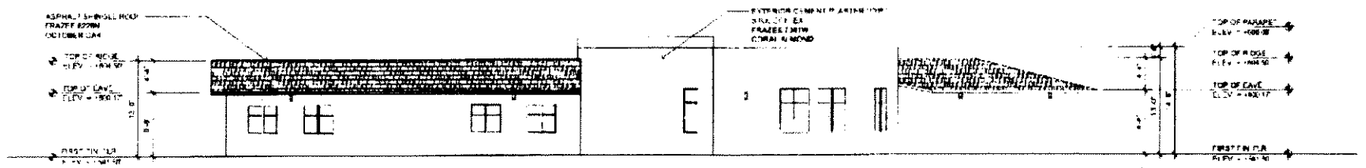


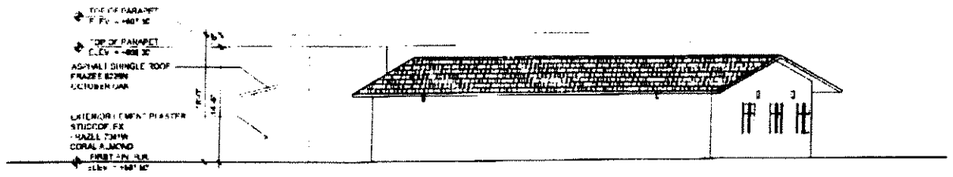
Figure 6
Existing Noise Sources



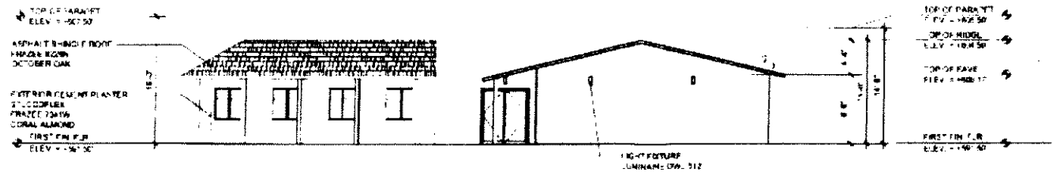
EAST ELEVATION
SCALE: 1/8" = 1'-0"



WEST ELEVATION
SCALE: 1/8" = 1'-0"



NORTH ELEVATION
SCALE: 1/8" = 1'-0"



SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

Source: Salerno/Livingston Architechts
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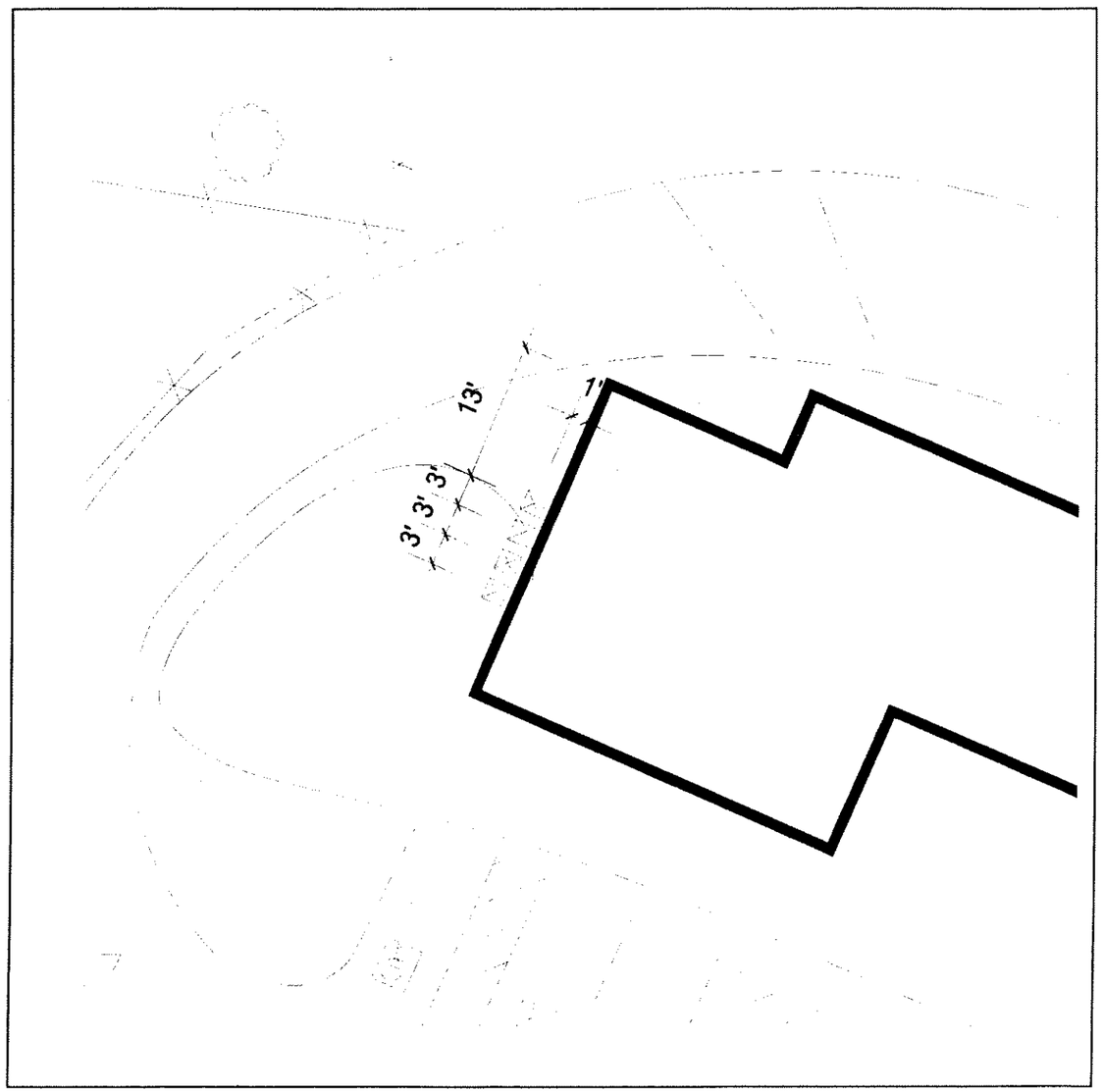
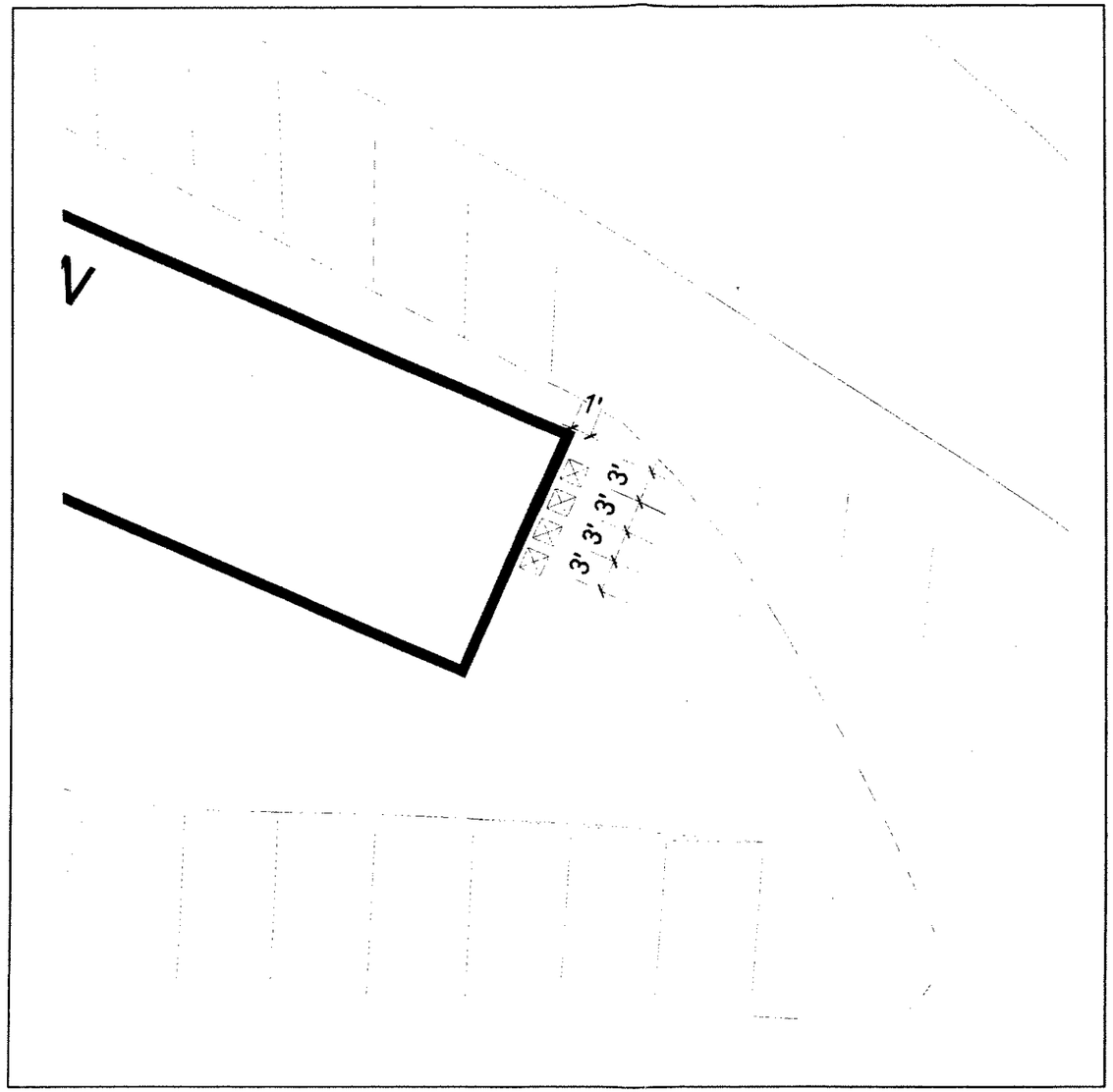
Figure 7
Trinity Church
Ward Center Elevation



NORTHWESTERN END



SOUTHEASTERN END

Figure 8
Christian Education Building HVAC Locations

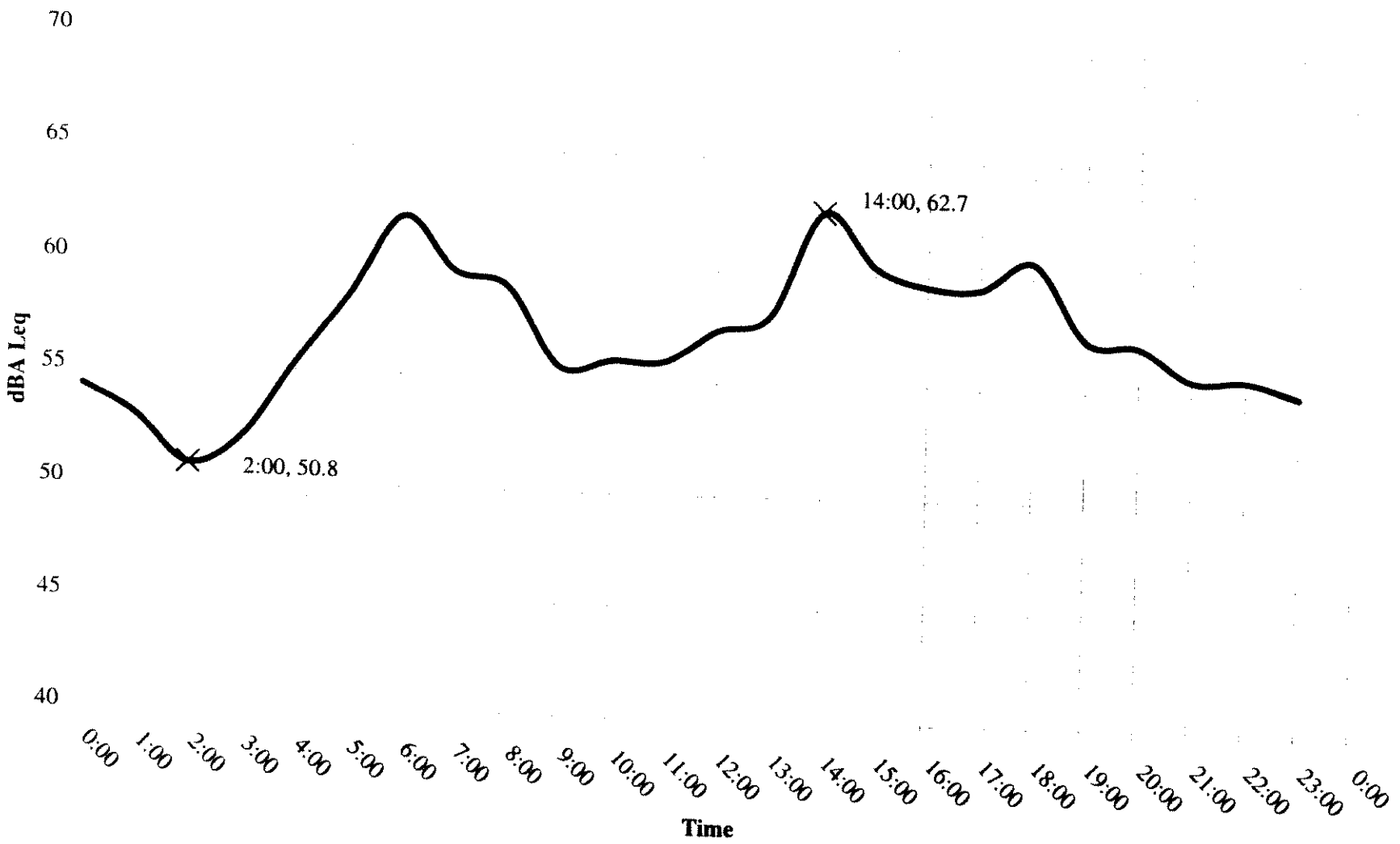
Exhibit 1

C:\LARDAV\SLMUTIL\TRNCHR1.bin Interval Data

Meas Site	Location	Number	Date	Time	Duration	Leq			Lmax	Lmin	Peak	Uwpk	L(10)	L(33)	L(50)	L(90)	Over loads
1	Trinity Church Eastern Prop. I	0	23Aug 04	15:39:19	40.8	60.6	1148154	46844667.76	62.2	59.2	81.9	102.5	61.6	60.9	60.6	59.8	0
1	Trinity Church Eastern Prop. I	0	23Aug 04	15:40:00	300	60.6	1148154	344446086.4	66.1	57.4	79.9	107.6	61.9	60.9	60.4	59	0
1	Trinity Church Eastern Prop. I	0	23Aug 04	15:45:00	300	59.9	977237.2	293171166.3	68.6	57.1	82	102.5	61.2	60.2	59.7	58.2	0
1	Trinity Church Eastern Prop. I	0	23Aug 04	15:50:00	300	61	1258925	377677623.5	69.8	57	91.8	106.6	63.1	60.8	60.2	58.6	0
1	Trinity Church Eastern Prop. I	0	23Aug 04	15:55:00	18.2	61.3	1348963	24551124.46	66.2	57.8	79.3	107.6	63.7	61.9	60.6	58.2	0
				sum	959			1086690668									
				min/ave	16.0	**60.5**	1133150										
2	Trinity Church South Prop. Li	0	23Aug 04	13:51:10	229.6	50.6	114815.4	26361607.15	58.5	47.1	76.3	100.5	51.9	50.8	50.3	48.6	0
2	Trinity Church South Prop. Li	0	23Aug 04	13:55:00	300	50	100000	30000000	54.3	47.1	67.8	100.5	51.5	50.4	49.8	48.3	0
2	Trinity Church South Prop. Li	0	23Aug 04	14:00:00	300	50.1	102329.3	30698789.77	59.7	46.8	82	104.1	51.9	50	49.5	48.1	0
2	Trinity Church South Prop. Li	0	23Aug 04	14:05:00	300	52.8	190546.1	57163821.54	63.6	47.1	84.7	104.1	55.1	52.5	51.4	48.5	0
2	Trinity Church South Prop. Li	0	23Aug 04	14:10:00	300	49.7	93325.43	27997629.02	57.1	46.7	69.5	98	51.2	49.9	49.3	48.1	0
2	Trinity Church South Prop. Li	0	23Aug 04	14:15:00	300	49.2	83176.38	24952913.13	59.6	46.2	79.4	100.5	50.7	49.4	48.8	47.5	0
2	Trinity Church South Prop. Li	0	23Aug 04	14:20:00	73.6	48	63095.73	4643846.055	51.7	46.2	73.5	0	49	48.4	48	47.1	0
				sum	1803.2			201818606.7									
				min/ave	30.1	**50.5**	111922.5										
3	Trinity Church Northern Prop.	0	23Aug 04	15:00:00	300	57.3	537031.8	161109538.9	71.9	49.3	84.8	104.1	57.5	54.2	52.2	50.3	0
3	Trinity Church Northern Prop.	0	23Aug 04	15:05:00	300	52.6	181970.1	54591025.76	73.3	48.8	89.8	104.1	53.6	52.3	51.7	50.1	0
3	Trinity Church Northern Prop.	0	23Aug 04	15:10:00	300	52.8	190546.1	57163821.54	66.8	47.8	77.4	98	54.3	50.8	50.2	49.1	0
3	Trinity Church Northern Prop.	0	23Aug 04	15:15:00	300	53.8	239883.3	71964987.57	66.4	47.6	79.1	104.1	57.8	52	50	48.5	0
3	Trinity Church Northern Prop.	0	23Aug 04	15:20:00	300	53.3	213796.2	64138862.69	65	47.9	77.1	104.1	56.6	52.4	50.7	49.1	0
3	Trinity Church Northern Prop.	0	23Aug 04	15:25:00	300	50.6	114815.4	34444608.64	61.7	47.7	73.5	102.5	51.7	50.4	49.8	48.6	0
3	Trinity Church Northern Prop.	0	23Aug 04	15:30:00	113.2	52.5	177827.9	20130122.92	70.5	48.5	92.4	106.6	54.7	51	50.5	49.2	0
				sum	1913.2			463542968									
				min/ave	31.9	**53.8**	242286.7										
4	Trinity Church Exist. AC	0	23Aug 04	14:33:15	104	65.4	3467369	360606324.5	67.8	62.7	81	98	66.5	65.7	65.4	64.2	0
4	Trinity Church Exist. AC	0	23Aug 04	14:35:00	300	65.4	3467369	1040210551	68.3	62.6	91.2	98	66.6	65.7	65.4	64.2	0
4	Trinity Church Exist. AC	0	23Aug 04	14:40:00	300	65.4	3467369	1040210551	68.8	62.3	92.5	105.4	66.5	65.7	65.4	64.2	0
4	Trinity Church Exist. AC	0	23Aug 04	14:45:00	300	65.7	3715352	1114605687	69.6	62.9	81.4	104.1	66.9	66	65.6	64.3	0
4	Trinity Church Exist. AC	0	23Aug 04	14:50:00	300	65.4	3467369	1040210551	68.5	63	88.1	98	66.5	65.7	65.3	64.2	0
4	Trinity Church Exist. AC	0	23Aug 04	14:55:00	94.7	65.4	3467369	328359797.4	67.7	63.3	84	98	66.5	65.6	65.3	64.2	0
				sum	1398.7			4924203463									
				min/ave	23.3	**65.5**	3520557										

Meas Site	Location	Number	Date	Time	Duration	Leq			Lmax	Lmin	Peak	Uwpk	L(10)	L(33)	L(50)	L(90)	Over loads
1n	Trinity Church Eastern Prop. I	0	09Sep 04	3:00:00	300	56.3	426579.5	127973855.6	64.8	49.8	75.4	0	58.8	56.6	55.2	51.9	0
1n	Trinity Church Eastern Prop. I	0	09Sep 04	3:05:00	300	53.2	208929.6	62678883.93	59.7	41.5	72.1	0	55.8	53.8	52.9	47.2	0
1n	Trinity Church Eastern Prop. I	0	09Sep 04	3:10:00	300	51.4	138038.4	41411527.94	57.1	45.9	70.2	0	53.7	51.8	50.8	48.4	0
1n	Trinity Church Eastern Prop. I	0	09Sep 04	3:15:00	300	54	251188.6	75356592.95	61.3	45.8	76	0	56.7	54.4	53.1	48.3	0
1n	Trinity Church Eastern Prop. I	0	09Sep 04	3:20:00	300	51.6	144544	43363193.12	58.5	43.7	81.1	0	54.2	52	50.7	46.5	0
				sum	1500			350784053.6									
				min/ave	25.0	**53.7**	233856										
2n	Trinity Church Souhtern Prop.	0	09Sep 04	3:15:00	300	39.4	8709.636	2612890.77	48.4	35.8	69.2	0	41.3	38.7	37.9	36.4	0
2n	Trinity Church Souhtern Prop.	0	09Sep 04	3:20:00	300	42.3	16982.44	5094730.957	50.6	36.4	63.4	0	46.2	40.9	39.6	37.4	0
2n	Trinity Church Souhtern Prop.	0	09Sep 04	3:25:00	300	38.1	6456.542	1936962.687	46.1	36.2	82	0	39.7	38.3	37.7	36.5	0
2n	Trinity Church Souhtern Prop.	0	09Sep 04	3:30:00	300	38.8	7585.776	2275732.725	52.2	36.6	89.1	0	39.8	38.8	38.3	37.2	0
2n	Trinity Church Souhtern Prop.	0	09Sep 04	3:35:00	300	39.5	8912.509	2673752.814	46.9	36.6	76.1	0	41.3	39.4	38.8	37.5	0
2n	Trinity Church Souhtern Prop.	0	09Sep 04	3:40:00	300	40.5	11220.18	3366055.363	48.3	36.8	66.2	0	43	40.1	39.2	37.7	0
				sum	1800			17960125.32									
				min/ave	30.0	**40.0**	9977.847										
3n	Trinity Church Northern Prop.	0	09Sep 04	3:30:00	300	41.1	12882.5	3864748.655	50.5	35.6	61.5	0	43.5	40.6	39.8	38.1	0
3n	Trinity Church Northern Prop.	0	09Sep 04	3:35:00	300	41.6	14454.4	4336319.312	48	37.2	59	0	43.7	41.8	41	39.2	0
3n	Trinity Church Northern Prop.	0	09Sep 04	3:40:00	300	43.5	22387.21	6716163.416	48	39	60.5	0	44.9	43.8	43.3	41.7	0
3n	Trinity Church Northern Prop.	0	09Sep 04	3:45:00	300	42	15848.93	4754679.577	45.4	38.4	58.3	0	43.6	42.5	41.9	40	0
3n	Trinity Church Northern Prop.	0	09Sep 04	3:50:00	300	41.5	14125.38	4237612.634	47.1	38.5	58.3	0	43.3	41.8	41.2	39.7	0
3n	Trinity Church Northern Prop.	0	09Sep 04	3:55:00	300	40.9	12302.69	3690806.312	44.5	37.2	57.4	0	42.5	41.4	40.7	39.1	0
				sum	1800			27600329.91									
				min/ave	30.0	**41.9**	15333.52										

Trinity Church 1 Hour Leq - Weekday
January 12 - 13, 2005

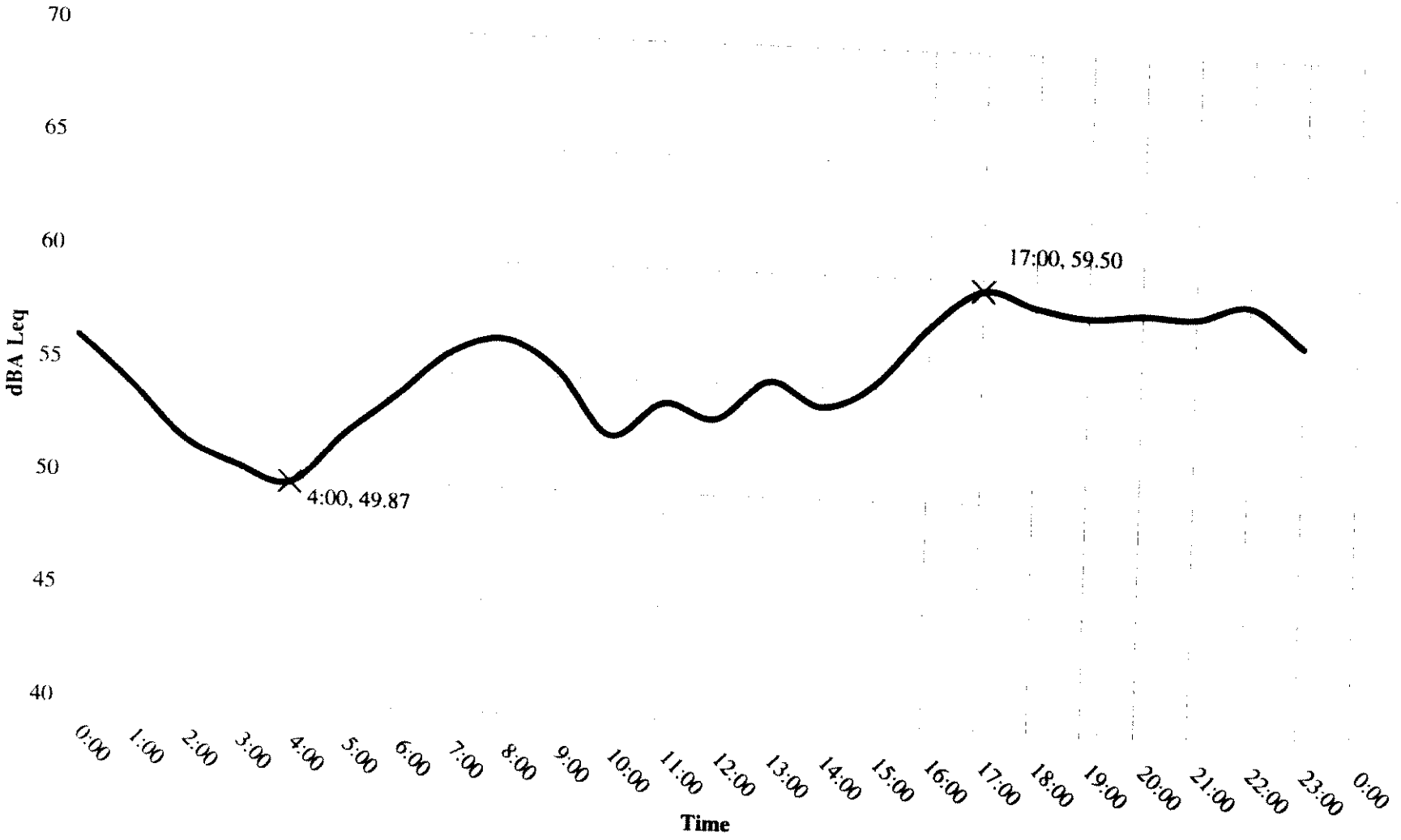


24-HOUR
WEEKDAY NOISE MEASUREMENTS

Location	Date	Time	Duration		Leq			CNEL			Lmax	Lmin	Peak	Uwpk	L(5)	L(10)	L(50)	L(90)
Trinity Chu	13Jan 05	0:00:00		900	54.1	3.E+05	2.E+08	64.1	3.E+06	2.E+09	66.9	50	90.1	100.6	56.5	55.7	53.8	51.7
Trinity Chu	13Jan 05	0:15:00		900	53.6	2.E+05	2.E+08	63.6	2.E+06	2.E+09	58	49.5	82.3	0	56.2	55.6	53.2	51.3
Trinity Chu	13Jan 05	0:30:00		900	54.6	3.E+05	3.E+08	64.6	3.E+06	3.E+09	76.6	47.4	109.6	110.2	55.5	54.6	52.3	49.7
Trinity Chu	13Jan 05	0:45:00		900	54	3.E+05	2.E+08	64	3.E+06	2.E+09	59.5	48.8	73.6	0	56.8	55.9	53.6	51.2
Trinity Chu	13Jan 05	1:00:00		900	53.3	2.E+05	2.E+08	63.3	2.E+06	2.E+09	58.5	47.6	75.6	0	55.8	55.2	52.9	51
Trinity Chu	13Jan 05	1:15:00		900	53.2	2.E+05	2.E+08	63.2	2.E+06	2.E+09	67.8	46.9	92.5	102.6	54.9	54.5	52.6	50.1
Trinity Chu	13Jan 05	1:30:00		900	52.5	2.E+05	2.E+08	62.5	2.E+06	2.E+09	58.3	45.8	72.4	0	55.6	54.7	52.2	49.3
Trinity Chu	13Jan 05	1:45:00		900	52.3	2.E+05	2.E+08	62.3	2.E+06	2.E+09	59.6	46.5	74.2	0	55.1	54.5	51.8	49
Trinity Chu	13Jan 05	2:00:00		900	52	2.E+05	1.E+08	62	2.E+06	1.E+09	63.3	47.1	77.7	0	55.5	53.6	51	49.2
Trinity Chu	13Jan 05	2:15:00		900	50.3	1.E+05	1.E+08	60.3	1.E+06	1.E+09	64	45.3	78.7	0	52.8	52	49.6	47.5
Trinity Chu	13Jan 05	2:31:12		900	49.8	1.E+05	9.E+07	59.8	1.E+06	9.E+08	53.5	44.9	68.6	0	52.2	51.6	49.6	47.7
Trinity Chu	13Jan 05	2:45:00		900	50.7	1.E+05	1.E+08	60.7	1.E+06	1.E+09	54.8	44.5	69.2	0	52.9	52.6	50.5	48.4
Trinity Chu	13Jan 05	3:00:00		900	50.9	1.E+05	1.E+08	60.9	1.E+06	1.E+09	66.5	42.5	90.5	98.1	54	53	50	47.4
Trinity Chu	13Jan 05	3:15:00		900	50	1.E+05	9.E+07	60	1.E+06	9.E+08	55.2	44.1	70.5	0	52.5	51.9	49.7	47.9
Trinity Chu	13Jan 05	3:30:00		900	52.9	2.E+05	2.E+08	62.9	2.E+06	2.E+09	58.2	47.2	75.4	0	56	55.4	52.3	49.6
Trinity Chu	13Jan 05	3:45:00		900	53.5	2.E+05	2.E+08	63.5	2.E+06	2.E+09	60.1	48.2	73.1	0	55.9	55.3	53.2	50.9
Trinity Chu	13Jan 05	4:00:00		900	53.5	2.E+05	2.E+08	63.5	2.E+06	2.E+09	58.6	48.7	73.2	0	55.7	55.3	53.3	51.3
Trinity Chu	13Jan 05	4:15:00		900	54.2	3.E+05	2.E+08	64.2	3.E+06	2.E+09	57.6	49.9	71.8	0	56.4	55.9	54.1	51.6
Trinity Chu	13Jan 05	4:30:00		900	56.1	4.E+05	4.E+08	66.1	4.E+06	4.E+09	59.2	52.5	74	0	57.9	57.6	55.9	54.1
Trinity Chu	13Jan 05	4:45:00		900	56.9	5.E+05	4.E+08	66.9	5.E+06	4.E+09	63.6	53.1	77.4	0	59.4	58	56.3	54.9
Trinity Chu	13Jan 05	5:00:00		900	56.6	5.E+05	4.E+08	66.6	5.E+06	4.E+09	60.2	53.2	73.6	0	58.4	57.9	56.4	54.9
Trinity Chu	13Jan 05	5:15:00		900	58.6	7.E+05	7.E+08	68.6	7.E+06	7.E+09	63.4	55.5	77.1	0	60	59.8	58.6	56.8
Trinity Chu	13Jan 05	5:30:00		900	59.1	8.E+05	7.E+08	69.1	8.E+06	7.E+09	62.9	56.9	76.1	0	60.6	60	59	58
Trinity Chu	13Jan 05	5:45:00		900	59.2	8.E+05	7.E+08	69.2	8.E+06	7.E+09	61.4	56.9	77	0	60.8	60.5	59.1	57.6
Trinity Chu	13Jan 05	6:00:00		900	61.6	1.E+06	1.E+09	71.6	1.E+07	1.E+10	75.6	57.4	91.3	100.6	62.8	61.7	59.7	58.2
Trinity Chu	13Jan 05	6:15:00		900	61.1	1.E+06	1.E+09	71.1	1.E+07	1.E+10	64.1	59.2	81.7	0	62.7	62.4	60.8	59.8
Trinity Chu	13Jan 05	6:30:00		900	63	2.E+06	2.E+09	73	2.E+07	2.E+10	65.5	60.7	82.3	0	64.4	63.9	62.8	61.5
Trinity Chu	13Jan 05	6:45:00		900	62.2	2.E+06	1.E+09	72.2	2.E+07	1.E+10	64.6	59.8	77.6	0	63.7	63.3	62.2	60.7
Trinity Chu	13Jan 05	7:00:00		900	60.1	1.E+06	9.E+08	60.1	1.E+06	9.E+08	63	57.7	84.6	0	61.7	61.3	60.1	58.4
Trinity Chu	13Jan 05	7:15:00		900	59.9	1.E+06	9.E+08	59.9	1.E+06	9.E+08	63.8	58.2	84.6	98.1	61.1	60.9	59.8	59
Trinity Chu	13Jan 05	7:30:00		900	58.8	8.E+05	7.E+08	58.8	8.E+05	7.E+08	60.3	57.3	82.6	0	59.9	59.8	58.7	57.6
Trinity Chu	13Jan 05	7:45:00		900	59.8	1.E+06	9.E+08	59.8	1.E+06	9.E+08	68.8	57.5	84.6	0	61.5	60.9	59.6	58.3
Trinity Chu	13Jan 05	8:00:00		900	59.8	1.E+06	9.E+08	59.8	1.E+06	9.E+08	80	56	111.8	110.9	63.3	60.9	58.1	57.1
Trinity Chu	13Jan 05	8:15:00		900	60.9	1.E+06	1.E+09	60.9	1.E+06	1.E+09	73.3	56.9	96.5	102.6	64.7	63.4	59.6	58
Trinity Chu	13Jan 05	8:30:00		900	56.7	5.E+05	4.E+08	56.7	5.E+05	4.E+08	61.9	54.4	82.9	98.1	58.8	58.1	56.4	55.2
Trinity Chu	13Jan 05	8:45:00		900	57.5	6.E+05	5.E+08	57.5	6.E+05	5.E+08	70.8	54.7	89.6	0	60.2	58.9	56.8	55.5
Trinity Chu	13Jan 05	9:00:00		900	56.6	5.E+05	4.E+08	56.6	5.E+05	4.E+08	65.5	54.1	83	98.1	58.8	57.8	55.9	55.1
Trinity Chu	13Jan 05	9:15:00		900	54.5	3.E+05	3.E+08	54.5	3.E+05	3.E+08	60.5	52.2	85.5	0	57.3	55.9	54	53
Trinity Chu	13Jan 05	9:30:00		900	54.9	3.E+05	3.E+08	54.9	3.E+05	3.E+08	62.7	52.3	82.8	0	57.4	56.4	54.4	53.2
Trinity Chu	13Jan 05	9:45:00		900	56	4.E+05	4.E+08	56	4.E+05	4.E+08	70.4	51.9	85.1	0	60.1	59.3	54.3	52.7
Trinity Chu	13Jan 05	10:00:00		900	55.3	3.E+05	3.E+08	55.3	3.E+05	3.E+08	66.9	51.1	85	0	58.5	56.7	54.4	52.8
Trinity Chu	13Jan 05	10:15:00		900	55.3	3.E+05	3.E+08	55.3	3.E+05	3.E+08	63.9	51.7	78.7	0	57.8	56.9	54.8	53.3
Trinity Chu	13Jan 05	10:30:00		900	56.2	4.E+05	4.E+08	56.2	4.E+05	4.E+08	73	49.9	97.3	104.2	58.9	57.2	53.9	52.1
Trinity Chu	13Jan 05	10:45:00		900	56.7	5.E+05	4.E+08	56.7	5.E+05	4.E+08	68.6	50.3	84.7	0	62	59.5	54.2	52.1
Trinity Chu	13Jan 05	11:00:00		900	57.5	6.E+05	5.E+08	57.5	6.E+05	5.E+08	69	50.8	81.9	0	61.9	60.4	55.6	53.1
Trinity Chu	13Jan 05	11:15:00		900	56.5	4.E+05	4.E+08	56.5	4.E+05	4.E+08	68	50.8	84.1	0	60.5	59.1	54.9	52.7
Trinity Chu	13Jan 05	11:30:00		900	54.7	3.E+05	3.E+08	54.7	3.E+05	3.E+08	66.4	50	93.9	0	58.1	56.9	53.8	51.8
Trinity Chu	13Jan 05	11:45:00		900	54.2	3.E+05	2.E+08	54.2	3.E+05	2.E+08	72	50	89.6	0	56.6	55.8	53.3	52
Trinity Chu	13Jan 05	12:00:00		900	56.3	4.E+05	4.E+08	56.3	4.E+05	4.E+08	69.7	52.3	83.7	0	59.6	58.4	55.3	53.3
Trinity Chu	13Jan 05	12:15:00		900	57.1	5.E+05	5.E+08	57.1	5.E+05	5.E+08	69.5	51.3	87.3	0	61	59.1	55.6	53.3
Trinity Chu	13Jan 05	12:30:00		900	59	8.E+05	7.E+08	59	8.E+05	7.E+08	72.1	52.4	90.5	0	63.2	61.8	57.6	54.8
Trinity Chu	13Jan 05	12:45:00		900	56.4	4.E+05	4.E+08	56.4	4.E+05	4.E+08	66.6	51.3	81.2	0	59.6	58.5	55.5	53.1
Trinity Chu	13Jan 05	13:00:00		900	57.2	5.E+05	5.E+08	57.2	5.E+05	5.E+08	68.3	53.3	84.8	0	61.4	59.7	55.8	54.2
Trinity Chu	13Jan 05	13:15:00		900	57.5	6.E+05	5.E+08	57.5	6.E+05	5.E+08	75.7	53	89.7	0	59.9	58.4	55.6	54.2
Trinity Chu	13Jan 05	13:30:00		900	57.1	5.E+05	5.E+08	57.1	5.E+05	5.E+08	61.6	54.2	76.6	0	59	58.7	56.7	55.2
Trinity Chu	13Jan 05	13:45:00		900	59.9	1.E+06	9.E+08	59.9	1.E+06	9.E+08	67	56.7	81.5	96.6	62.4	61.7	59.5	58
Trinity Chu	13Jan 05	14:00:00		900	60.8	1.E+06	1.E+09	60.8	1.E+06	1.E+09	68.1	57.3	84.8	100.6	63.3	62.6	60.3	58.8
Trinity Chu	13Jan 05	14:15:00		900	63.8	2.E+06	2.E+09	63.8	2.E+06	2.E+09	78.4	58.8	93.3	104.2	66.7	65.5	62.4	60.7
Trinity Chu	13Jan 05	14:30:00		900	63.1	2.E+06	2.E+09	63.1	2.E+06	2.E+09	72.8	59	90.9	104.2	65.9	65	62.4	60.7
Trinity Chu	13Jan 05	14:45:00		900	69	8.E+06	7.E+09	69	8.E+06	7.E+09	87.1	59.4	118.8	118.7	73.7	68.3	63.5	61.5
Trinity Chu	13Jan 05	15:00:00		900	62.4	2.E+06	2.E+09	62.4	2.E+06	2.E+09	70.5	58.2	87.9	102.6	64.9	64.3	62	59.9
Trinity Chu	13Jan 05	15:15:00		900	58.5	7.E+05	6.E+08	58.5	7.E+05	6.E+08	68.2	55.6	94.5	98.1	60.9	60.1	57.8	56.4
Trinity Chu	12Jan 05	15:30:00		900	58.6	7.E+05	7.E+08	58.6	7.E+05	7.E+08	69.9	53.6	87.9	100.6	62.1	59.7	56.9	55.2
Trinity Chu	12Jan 05	15:45:00		900	60.7	1.E+06	1.E+09	60.7	1.E+06	1.E+09	78.2	54.9	93.7	108.6	60.8	59	57.6	56.3
Trinity Chu	12Jan 05	16:00:00		900	60.3	1.E+06	1.E+09	60.3	1.E+06	1.E+09	77	55.8	90.3	104.9	61.8	60.4	58.2	56.8
Trinity Chu	12Jan 05	16:15:00		900	58.6	7.E+05	7.E+08	58.6	7.E+05	7.E+08	64.8	55.8	84.2	98.1	60.7	60	58.3	57
Trinity Chu	12Jan 05	16:30:00		900	59	8.E+05	7.E+08	59	8.E+05	7.E+08	70.5	55.5	87.1	0	62.2	60.7	58.2	56.6
Trinity Chu	12Jan 05	16:45:00		900	60	1.E+06	9.E+08	60	1.E+06	9.E+08	68.5	57.9	85.9	98.1	61.7	61	59.7	58.6
Trinity Chu	12Jan 05	17:00:00		900	59.9	1.E+06	9.E+08	59.9	1.E+06	9.E+08	66.2	57.9	89.7	102.6	62	61	59.6	58.5
Trinity Chu	12Jan 05	17:15:00		900	59.6	9.E+05	8.E+08	59.6	9.E+05	8.E+08	65.2	57.2	77.8	0	61.3	60.8	59.4	58.2
Trinity Chu	12Jan 05	17:30:00		900	59.2	8.E+05	7.E+08	59.2	8.E+05	7.E+08	61.8	57.5	79.2	0	60.6	60.1	59.2	58.2
Trinity Chu	12Jan 05	17:45:00		900	59.2	8.E+05	7.E+08	59.2	8.E+05	7.E+08	62.3	57.5	82.9	0	60.5	60	59.3	58.2
Trinity Chu	12Jan 05	18:00:00		900	59	8.E+05	7.E+08	59	8.E+05	7.E+08	63	57.2	75.9	0	60.7	60	58.8	57.9
Trinity Chu	12Jan 05	18:15:00		900	60.9	1.E+06	1.E+09	60.9	1.E+06	1.E+09	68.5	58.6	85.5	0	62.9	62.1	60.6	59.2
Trinity Chu	12Jan 05	18:30:00		900	61.6	1.E+06	1.E+09	61.6	1.E+06	1.E+09	64.5	59.7	79.4	0	62.9	62.6	61.5	60.5
Trinity Chu	12Jan 05	18:45:00		900	60.9	1.E+06	1.E+09	60.9	1.E+06	1.E+09	79.4	56.7	103.8	104.2	62.5	61.8	59.9	58
Trinity Chu	12Jan 05	19:00:00		900	58.3	7.E+05	6.E+08	63.3	2.E+06	2.E+09	62.7	55.9	75.1	0	59.9	59.6	58.1	57.1
Trinity Chu	12Jan 05	19:15:00		900	57.5	6.E+05	5.E+08	62.5	2.E+06	2.E+09	63.7	54.7	74.4	0	59	58.7	57.4	56.2
Trinity Chu	12Jan 05	19:30:00		900	57.2	5.E+05	5.E+08	62.2	2.E+06	1.E+09	62.9	54.7	77	0	58.9	58.4	56.9	55.7
Trinity Chu	12Jan 05	19:45:00		900	56	4.E+05	4.E+08	61	1.E+06	1.E+09	61	54	74	0	57.7	57.2	55.8	54.8
Trinity Chu	12Jan 05	20:00:00		900	56.1	4.E+05	4.E+08	61.1	1.E+06	1.E+09	63	54.1	86.1	0	58	57.5	55.8	54.9
Trinity Chu	12Jan 05	20:15:00		900	56	4.E+05	4.E+08	61	1.E+06	1.E+09	61.1	54.4	72.6	0	57.3	56.9	55.9	55.1
Trinity Chu	12Jan 05	20:30:00		900	58.2	7.E+05	6.E+08	63.2	2.E+06	2.E+09	62.1	54.4	77.2	0	60.7	60	57.8	56
Trinity Chu	12Jan 05	20:45:00		900	57.6	6.E+05	5.E+08	62.6	2.E+06	2.E+09	60.7	55.4	73.7	0	59.1	58.8	57.4	56.2
Trinity Chu	12Jan 05	21:00:00		900	55.1	3.E+05	3.E+08	60.1	1.E+06	9.E+08	64.1	52.2	74.9	0	57.4	56.8	54.5	53.1
Trinity Chu	12Jan 05	21:15:00		900	54.6	3.E+05	3.E+08	59.6	9.E+05	8.E+08	58.2	53	72.6	0	55.8	55.5	54.5	53.5
Trinity Chu	12Jan 05	21:30:00		900	56.3	4.E+05	4.E+08	61.3	1.E+06	1.E+09	64	53.2	81.3	0	59.7	57.7	55.5	54.3
Trinity Chu	12Jan 05	21:45:00		900	56.3	4.E+05	4.E+08	61.3	1.E+06	1.E+09	61.2	53.2	75.9	0	58.5	57.8	55.8	54.7
Trinity Chu	12Jan 05	22:00:00		900	55.9	4.E+05	4.E+08	65.9	4.E+06	4.E+09	59.1	53.4	73.3	0	57.6	57	55.8	54.4
Trinity Chu	12Jan 05	22:15:00		900	56.2	4.E+05	4.E+08	66.2	4.E+06	4.E+09	63.1	53.3	75.8	0	57.9	57.4	55.8	54.4
Trinity Chu	12Jan 05	22:30:00		900	55.4	3.E+05	3.E+08	65.4	3.E+06	3.E+09	58.8	50.8	73	0	57.3	56.8	55.3	53.7
Trinity Chu	12Jan 05	22:45:00		900	55.1	3.E+05	3.E+08	65.1	3.E+06	3.E+09	59.8	50.2	80	98.1	57.6	56.9	54.8	52.7
Trinity Chu	12Jan 05	23:00:00		900	56.2	4.E+05	4.E+08	66.2	4.E+06	4.E+09	61.2	53.3	81	0	58.3	57.7	55.9	54.4
Trinity Chu	12Jan 05	23:15:00		900	55.2	3.E+05	3.E+08	65.3	3.E+06	3.E+09	74.8	51	97.5	100.6	56.9	56	54.1	52.5
Trinity Chu	12Jan 05	23:30:00		900	54.3	3.E+05	2.E+08	64.3	3.E+06	2.E+09	59.5	50.9	82.5	98.1	56.4	55.9	53.9	52.3
Trinity Chu	12Jan 05	23:45:00		900	53.9	2.E+05	2.E+08	63.9	2.E+06	2.E+09	64.2	47.9	77.9	0	57	55.6	52.1	49.8

Daytime Leq	59.4
Nighttime Leq	57.0
24-Hour Leq	58.7
CNEL	64.3
Max Leq	69.0
Max Leq Time	14:45
Max Leq Date	13Jan 05
Min Leq	49.8
Min Leq Time	2:30
Min Leq Date	13-Jan-2005
Lmax	87.1
Lmin	42.5
Peak	118.8

Trinity Church 1 Hour Leq - Weekend
January 15 - 16, 2005



24-Hour Weekend Noise Measurements

Location	Date	Time	Duration		Leq			CNEL			Lmax	Lmin	Peak	Uwpk	L(5)	L(10)	L(50)	L(90)
Trinity Church	16Jan 05	0:00:00	900	57.2	5.E+05	5.E+08	67.2	5.E+06	5.E+09	62.5	52.1	76.6	0	60.6	59.6	56.6	54.6
Trinity Church	16Jan 05	0:15:00	900	56.8	5.E+05	4.E+08	66.8	5.E+06	4.E+09	61.4	53.1	76	0	58.9	58.3	56.6	55.1
Trinity Church	16Jan 05	0:30:00	900	55.1	3.E+05	3.E+08	65.1	3.E+06	3.E+09	59.3	51.5	72.2	0	57	56.6	55	53.4
Trinity Church	16Jan 05	0:45:00	900	54.4	3.E+05	2.E+08	64.4	3.E+06	2.E+09	59.4	50	72.7	0	56.6	55.9	54.2	52.4
Trinity Church	16Jan 05	1:00:00	900	55.6	4.E+05	3.E+08	65.6	4.E+06	3.E+09	62.2	49.7	74.7	0	58.5	57.7	55.3	52.8
Trinity Church	16Jan 05	1:15:00	900	54.3	3.E+05	2.E+08	64.3	3.E+06	2.E+09	67.9	48.7	80.6	98.1	57.3	55.9	53.6	51.4
Trinity Church	16Jan 05	1:30:00	900	52.8	2.E+05	2.E+08	62.8	2.E+06	2.E+09	59.5	48	75.4	0	55.4	54.7	52.3	50.4
Trinity Church	16Jan 05	1:45:00	900	52.4	2.E+05	2.E+08	62.4	2.E+06	2.E+09	59	48	74.6	0	54.5	53.9	52.2	50.1
Trinity Church	16Jan 05	2:00:00	900	52.7	2.E+05	2.E+08	62.7	2.E+06	2.E+09	59.2	46.7	73	0	55	54.4	52.5	50
Trinity Church	16Jan 05	2:15:00	900	49.5	9.E+04	8.E+07	59.5	9.E+05	8.E+08	55.5	45.8	72.7	0	51.8	51	49.1	47.4
Trinity Church	16Jan 05	2:30:00	900	51.1	1.E+05	1.E+08	61.1	1.E+06	1.E+09	57.9	45.7	71.5	0	53.8	53	50.7	47.9
Trinity Church	16Jan 05	2:45:00	900	52.5	2.E+05	2.E+08	62.5	2.E+06	2.E+09	58.7	45.6	75.2	0	55.7	54.7	51.8	49.1
Trinity Church	16Jan 05	3:00:00	900	51.3	1.E+05	1.E+08	61.3	1.E+06	1.E+09	58.9	46.1	72	0	53.7	53	51	48.6
Trinity Church	16Jan 05	3:15:00	900	49.5	9.E+04	8.E+07	59.5	9.E+05	8.E+08	55.5	43.6	68.9	0	52	51.4	49.1	47.1
Trinity Church	16Jan 05	3:30:00	900	50.6	1.E+05	1.E+08	60.6	1.E+06	1.E+09	56.7	44.6	73	0	53.8	53	50	47.4
Trinity Church	16Jan 05	3:45:00	900	50.6	1.E+05	1.E+08	60.6	1.E+06	1.E+09	56.5	42.7	70.2	0	53.7	52.9	50.1	46.4
Trinity Church	16Jan 05	4:00:00	900	50.9	1.E+05	1.E+08	60.9	1.E+06	1.E+09	55.7	44.7	71.8	0	52.9	52.6	50.6	48.4
Trinity Church	16Jan 05	4:15:00	900	50.2	1.E+05	9.E+07	60.2	1.E+06	9.E+08	57.8	42.3	71.5	0	53.4	52.2	49.6	47.5
Trinity Church	16Jan 05	4:30:00	900	47.8	6.E+04	5.E+07	57.8	6.E+05	5.E+08	52.7	42.7	66.6	0	50.5	49.8	47.4	45
Trinity Church	16Jan 05	4:45:00	900	50	1.E+05	9.E+07	60	1.E+06	9.E+08	58.2	44.3	71.3	0	52.7	52.1	49.4	47.1
Trinity Church	16Jan 05	5:00:00	900	50.6	1.E+05	1.E+08	60.6	1.E+06	1.E+09	55.3	44.3	71.5	0	53.6	52.9	50.1	47.2
Trinity Church	16Jan 05	5:15:00	900	50.4	1.E+05	1.E+08	60.4	1.E+06	1.E+09	57.7	44.3	73	0	53.5	52.6	49.8	47.5
Trinity Church	16Jan 05	5:30:00	900	53	2.E+05	2.E+08	63	2.E+06	2.E+09	58.1	46.7	71.2	0	56	55.6	52.4	49
Trinity Church	16Jan 05	5:45:00	900	53.5	2.E+05	2.E+08	63.5	2.E+06	2.E+09	58.6	46.8	72.3	0	56.3	55.8	53.3	49.3
Trinity Church	16Jan 05	6:00:00	900	52.1	2.E+05	1.E+08	62.1	2.E+06	1.E+09	57	48.1	74	0	54.4	53.8	51.9	50
Trinity Church	16Jan 05	6:15:00	900	54.3	3.E+05	2.E+08	64.3	3.E+06	2.E+09	62.1	50.2	78.4	0	56.8	55.9	53.8	52.1
Trinity Church	16Jan 05	6:30:00	900	54.9	3.E+05	3.E+08	64.9	3.E+06	3.E+09	61.8	48.8	74.8	0	57.4	56.8	54.5	52.3
Trinity Church	16Jan 05	6:45:00	900	54.2	3.E+05	2.E+08	64.2	3.E+06	2.E+09	58.8	49.8	74.3	0	56.6	55.9	54	51.5
Trinity Church	16Jan 05	7:00:00	900	55.5	4.E+05	3.E+08	55.5	4.E+05	3.E+08	59.5	51.7	74.2	0	57.8	57.3	55.2	53.2
Trinity Church	16Jan 05	7:15:00	900	56.2	4.E+05	4.E+08	56.2	4.E+05	4.E+08	62.7	50.6	76.4	0	58.9	58.2	55.8	53.1
Trinity Church	16Jan 05	7:30:00	900	56.6	5.E+05	4.E+08	56.6	5.E+05	4.E+08	61.9	51.9	78.9	0	59.5	58.8	56	53.6
Trinity Church	16Jan 05	7:45:00	900	55.5	4.E+05	3.E+08	55.5	4.E+05	3.E+08	58.9	50.9	79.5	0	57.3	56.9	55.4	53.7
Trinity Church	16Jan 05	8:00:00	900	56.6	5.E+05	4.E+08	56.6	5.E+05	4.E+08	63.5	52.5	78.6	0	59	58	56.1	54.5
Trinity Church	16Jan 05	8:15:00	900	56	4.E+05	4.E+08	56	4.E+05	4.E+08	70.4	53.3	84.9	0	57.7	57.2	55.7	54.3
Trinity Church	16Jan 05	8:30:00	900	56.8	5.E+05	4.E+08	56.8	5.E+05	4.E+08	62.3	53.8	78.4	0	58.8	58.1	56.6	55.2
Trinity Church	16Jan 05	8:45:00	900	57.1	5.E+05	5.E+08	57.1	5.E+05	5.E+08	62.2	53.9	78.7	0	58.9	58.7	56.9	55.1
Trinity Church	16Jan 05	9:00:00	900	57.4	5.E+05	5.E+08	57.4	5.E+05	5.E+08	64.2	54.6	81	0	58.9	58.6	57.3	56
Trinity Church	16Jan 05	9:15:00	900	55	3.E+05	3.E+08	55	3.E+05	3.E+08	59.1	52.6	72.7	0	56.8	56.4	54.7	53.5
Trinity Church	16Jan 05	9:30:00	900	54.1	3.E+05	2.E+08	54.1	3.E+05	2.E+08	60.5	51.9	80.4	0	56.3	55.4	53.7	52.5
Trinity Church	16Jan 05	9:45:00	900	53.7	2.E+05	2.E+08	53.7	2.E+05	2.E+08	63.3	50.7	83.8	0	56.5	55.1	53.1	51.8
Trinity Church	16Jan 05	10:00:00	900	53.1	2.E+05	2.E+08	53.1	2.E+05	2.E+08	63.4	50	80.2	0	56.3	54.9	52.4	51.1
Trinity Church	16Jan 05	10:15:00	900	52.3	2.E+05	2.E+08	52.3	2.E+05	2.E+08	62.2	49.3	79.6	0	55	53.7	51.5	50.1
Trinity Church	16Jan 05	10:30:00	900	51.8	2.E+05	1.E+08	51.8	2.E+05	1.E+08	65.6	48.2	76.7	0	55.8	52.4	50.2	49.1
Trinity Church	16Jan 05	10:45:00	900	52.8	2.E+05	2.E+08	52.8	2.E+05	2.E+08	62.7	48.7	76	0	55.7	54.5	51.6	49.4
Trinity Church	16Jan 05	11:00:00	900	54.6	3.E+05	3.E+08	54.6	3.E+05	3.E+08	61.8	51.3	81.2	0	56.5	55.8	54.3	53
Trinity Church	16Jan 05	11:15:00	900	54.2	3.E+05	2.E+08	54.2	3.E+05	2.E+08	60.5	51.2	73.6	0	56.7	55.8	53.6	52.3
Trinity Church	16Jan 05	11:30:00	900	54.3	3.E+05	2.E+08	54.3	3.E+05	2.E+08	64.1	50.1	81.9	0	58.5	56	52.8	51.2
Trinity Church	16Jan 05	11:45:00	900	52.8	2.E+05	2.E+08	52.8	2.E+05	2.E+08	58.8	50.2	76.7	0	54.6	53.9	52.6	51.4
Trinity Church	16Jan 05	12:00:00	900	53.8	2.E+05	2.E+08	53.8	2.E+05	2.E+08	63.5	49.3	83	0	58.4	56.1	52.2	50.7
Trinity Church	16Jan 05	12:15:00	900	53.3	2.E+05	2.E+08	53.3	2.E+05	2.E+08	61.6	50.6	79.1	0	55.6	54.5	52.7	51.5
Trinity Church	16Jan 05	12:30:00	900	53.4	2.E+05	2.E+08	53.4	2.E+05	2.E+08	59.8	50.3	78.8	0	56.3	55.3	52.8	51.4
Trinity Church	16Jan 05	12:45:00	900	53.1	2.E+05	2.E+08	53.1	2.E+05	2.E+08	60.8	49.7	74.7	0	55.4	54.7	52.5	50.9
Trinity Church	16Jan 05	13:00:00	900	54.4	3.E+05	2.E+08	54.4	3.E+05	2.E+08	59.5	51.8	74	0	56.5	55.9	54.1	52.6
Trinity Church	16Jan 05	13:15:00	900	56.5	4.E+05	4.E+08	56.5	4.E+05	4.E+08	76.7	52.5	105.9	108.6	56.9	56.5	55.2	54
Trinity Church	16Jan 05	13:30:00	900	55.3	3.E+05	3.E+08	55.3	3.E+05	3.E+08	63.6	52.4	82.6	0	56.9	56.3	54.8	53.7
Trinity Church	16Jan 05	13:45:00	900	54	3.E+05	2.E+08	54	3.E+05	2.E+08	59.6	51.8	74	0	55.9	55.2	53.8	52.6
Trinity Church	16Jan 05	14:00:00	900	54.3	3.E+05	2.E+08	54.3	3.E+05	2.E+08	59.3	50.5	92.3	98.1	56.2	55.6	54	52.5
Trinity Church	16Jan 05	14:15:00	900	54.8	3.E+05	3.E+08	54.8	3.E+05	3.E+08	65.2	49.6	78.7	0	58.3	56.4	53.3	51.4
Trinity Church	16Jan 05	14:30:00	900	52.9	2.E+05	2.E+08	52.9	2.E+05	2.E+08	62.1	50.4	88.6	0	55.7	54	52.4	51.2
Trinity Church	16Jan 05	14:45:00	900	54.2	3.E+05	2.E+08	54.2	3.E+05	2.E+08	59.4	51.6	74.2	0	56.3	55.5	53.9	52.6
Trinity Church	16Jan 05	15:00:00	900	54.1	3.E+05	2.E+08	54.1	3.E+05	2.E+08	64.2	51.2	76.4	0	56.6	55.3	53.2	52
Trinity Church	16Jan 05	15:15:00	900	54.8	3.E+05	3.E+08	54.8	3.E+05	3.E+08	65.4	51.6	86.6	0	57	56.6	54.3	52.8
Trinity Church	16Jan 05	15:30:00	900	55.8	4.E+05	3.E+08	55.8	4.E+05	3.E+08	59.6	53.3	73.6	0	57.8	57.2	55.7	54.3
Trinity Church	16Jan 05	15:45:00	900	55.8	4.E+05	3.E+08	55.8	4.E+05	3.E+08	64.4	53.3	76.3	0	57.4	56.8	55.5	54.3
Trinity Church	16Jan 05	16:00:00	900	56	4.E+05	4.E+08	56	4.E+05	4.E+08	62.8	54	76	0	57.4	56.9	55.9	54.8
Trinity Church	16Jan 05	16:15:00	900	57.6	6.E+05	5.E+08	57.6	6.E+05	5.E+08	60.9	55.1	74.7	0	59.1	58.9	57.6	56
Trinity Church	16Jan 05	16:30:00	900	57.2	5.E+05	5.E+08	57.2	5.E+05	5.E+08	61.7	54.6	81.1	0	58.9	58.3	56.9	56.1
Trinity Church	16Jan 05	16:45:00	900	59.6	9.E+05	8.E+08	59.6	9.E+05	8.E+08	66.9	56.7	81.1	0	61.8	60.8	59.1	57.7
Trinity Church	16Jan 05	17:00:00	900	59.5	9.E+05	8.E+08	59.5	9.E+05	8.E+08	65.2	56.6	79.3	0	61.5	60.8	59.2	57.8
Trinity Church	16Jan 05	17:15:00	900	58.4	7.E+05	6.E+08	58.4	7.E+05	6.E+08	61.4	56.3	84.5	0	59.9	59.7	58.2	57.1
Trinity Church	16Jan 05	17:30:00	900	60.1	1.E+06	9.E+08	60.1	1.E+06	9.E+08	63.5	56.9	80.9	0	61.8	61.6	60.1	58.3
Trinity Church	16Jan 05	17:45:00	900	59.8	1.E+06	9.E+08	59.8	1.E+06	9.E+08	66.2	56.2	82.2	0	62.3	61.8	58.9	56.9
Trinity Church	16Jan 05	18:00:00	900	60.4	1.E+06	1.E+09	60.4	1.E+06	1.E+09	63.3	56.2	76.9	0	62.5	62	60.3	57.9
Trinity Church	16Jan 05	18:15:00	900	58.6	7.E+05	7.E+08	58.6	7.E+05	7.E+08	71.4	55.8	94.8	102.6	60.7	60	57.9	56.7
Trinity Church	16Jan 05	18:30:00	900	58.3	7.E+05	6.E+08	58.3	7.E+05	6.E+08	62.3	55.5	80.9	0	59.9	59.6	58.2	57.1
Trinity Church	16Jan 05	18:45:00	900	57.4	5.E+05	5.E+08	57.4	5.E+05	5.E+08	60.5	54.4	75.3	0	58.9	58.6	57.3	56.1
Trinity Church	16Jan 05	19:00:00	900	58.4	7.E+05	6.E+08	63.4	2.E+06	2.E+09	62.1	55.3	76.5	0	60.1	59.8	58.2	56.8
Trinity Church	16Jan 05	19:15:00	900	58.1	6.E+05	6.E+08	63.1	2.E+06	2.E+09	62.3	55.4	76.1	0	60.2	59.7	57.8	56.4
Trinity Church	16Jan 05	19:30:00	900	58.6	7.E+05	7.E+08	63.6	2.E+06	2.E+09	81.6	54.4	110.1	110.9	59	58.6	56.8	55.5
Trinity Church	15Jan 05	19:45:00	900	58.6	7.E+05	7.E+08	63.6	2.E+06	2.E+09	64.2	55.3	81.7	0	60.9	60.6	58.2	56.4
Trinity Church	15Jan 05	20:00:00	900	59.2	8.E+05	7.E+08	64.2	3.E+06	2.E+09	70.7	55.3	95.8	102.6	62.5	61.7	58.2	56.6
Trinity Church	15Jan 05	20:15:00	900	57.3	5.E+05	5.E+08	62.3	2.E+06	2.E+09	60	54.8	73.7	0	58.9	58.7	57.3	55.7
Trinity Church	15Jan 05	20:30:00	900	59.2	8.E+05	7.E+08	64.2	3.E+06	2.E+09	62.5	56.1	78.7	0	61	60.6	58.9	57.6
Trinity Church	15Jan 05	20:45:00	900	58.5	7.E+05	6.E+08	63.5	2.E+06	2.E+09	63.6	55.3	87.3	0	60.5	59.9	58.2	56.6
Trinity Church	15Jan 05	21:00:00	900	58.6	7.E+05	7.E+08	63.6	2.E+06	2.E+09	63.3	55.8	76.4	0	60.6	60	58.3	57
Trinity Church	15Jan 05	21:15:00	900	58.5	7.E+05	6.E+08	63.5	2.E+06	2.E+09	64.4	55.7	79.9	0	60.1	59.8	58.4	56.9
Trinity Church	15Jan 05	21:30:00	900	58	6.E+05	6.E+08	63	2.E+06	2.E+09	62.2	53.9	76.6	0	60.3	59.7	57.7	56
Trinity Church	15Jan 05	21:45:00	900	59	8.E+05	7.E+08	64	3.E+06	2.E+09	64.3	55.5	78.5	0	60.9	60.4	58.7	57.3
Trinity Church	15Jan 05	22:00:00	900	59.9	1.E+06	9.E+08	69.9	1.E+07	9.E+09	73.4	54.5	88.4	98.1	62.4	61.5	59.2	56.9
Trinity Church	15Jan 05	22:15:00	900	60.2	1.E+06	9.E+08	70.2	1.E+07	9.E+09	63.5	57.2	78	0	62.1	61.7	60.1	58.8
Trinity Church	15Jan 05	22:30:00	900	59.7	9.E+05	8.E+08	69.7	9.E+06	8.E+09	65	56.6	82.2	0	61.7	61.1	59.5	58
Trinity Church	15Jan 05	22:45:00	900	58	6.E+05	6.E+08	68	6.E+06	6.E+09	61.6	54.4	78.8	0	60	59.6	57.7	56.2
Trinity Church	15Jan 05	23:00:00	900	58	6.E+05	6.E+08	68	6.E+06	6.E+09	61.6	54.1	76.2	0	60	59.6	57.8	56.3
Trinity Church	15Jan 05	23:15:00	900	59	8.E+05	7.E+08	69	8.E+06	7.E+09	64.6	54.6	79.1	0	61.8	61.1	58.4	56.6
Trinity Church	15Jan 05	23:30:00	900	55.8	4.E+05	3.E+08	65.8	4.E+06	3.E+09	68.6	51.9	80.1	0	58	57.2	55	53.4
Trinity Church	15Jan 05	23:45:00	900	55.9	4.E+05	4.E+08	65.9	4.E+06	4.E+09	59.9	51.4	74	0	58.1	57.6	55.7	53.8

Daytime Leq	56.8
Nighttime Leq	53.1
24-Hour Leq	55.5
CNEL	60.2
Max Leq	60.4
Max Leq Time	18:00
Max Leq Date	16-Jan-2005
Min Leq	47.8
Min Leq Time	4:30
Min Leq Date	16-Jan-2005
Lmax	76.7
Lmin	42.3
Peak	105.9
Avg L90	52.3
Avg L90 Nighttim	49.7
Avg L90 Daytime	54.2

SSA Intervals
Translated: 17-Jan-05 22:18:06
File Translated: C:\Program Files\larson davis\824 Utility\12Jan16s_004.slmdl
Model Number: 824
Serial Number: A3007
Firmware Rev: 4.23
Software Version 3.12
Name: EDAW,Inc.
Descr1: 1420 Kettner Blvd., Suite 620
Descr2: San Diego, CA 92020
Setup: 1minlsec.ssa
Setup Descr: SLM & Real-Time Analyzer
Location: Trinity Church
Note 1: LOCATION 6
Note 2: W1 NOISE MEASUREMENT

Weighting: A
Peak Weighting: Flat
Detector: Fast
RTA Detector: Fast

Rec #	Date	Time	Duration		Leq			SEL	LMin	LMax	UwPk	Peak
1	12-Jan-05	16:35:11	01:00.0	60	76.4	4.E+07	3.E+09	94.1	75.3	78.1	96.8	90.9
2	12-Jan-05	16:36:11	01:00.0	60	76.3	4.E+07	3.E+09	94.1	75.3	77.6	97.5	91.2
3	12-Jan-05	16:37:11	01:00.0	60	69.2	8.E+06	5.E+08	87	61.5	77.8	96.5	89.6
4	12-Jan-05	16:38:11	01:00.0	60	63.3	2.E+06	1.E+08	81.1	61.6	68.9	86.3	81
5	12-Jan-05	16:39:11	01:00.0	60	62.6	2.E+06	1.E+08	80.4	61.1	65.2	88.2	78.4
6	12-Jan-05	16:40:11	01:00.0	60	63.6	2.E+06	1.E+08	81.3	62.2	66.1	85.6	79.7
7	12-Jan-05	16:41:11	01:00.0	60	63.5	2.E+06	1.E+08	81.2	61.5	66.2	85.3	79.4
8	12-Jan-05	16:42:11	01:00.0	60	72.5	2.E+07	1.E+09	90.3	63.5	80.5	96.4	92.6
9	12-Jan-05	16:43:11	01:00.0	60	76.2	4.E+07	3.E+09	94	75	77.6	96.7	90.4
10	12-Jan-05	16:44:11	01:00.0	60	76.3	4.E+07	3.E+09	94.1	75.1	77.8	97.4	91.1
11	12-Jan-05	16:45:11	01:00.0	60	76.2	4.E+07	3.E+09	94	75.4	77.6	96.5	90.8
12	12-Jan-05	16:46:11	01:00.0	60	75.7	4.E+07	2.E+09	93.5	64.4	77.7	97.2	90.4
13	12-Jan-05	16:47:11	01:00.0	60	64.8	3.E+06	2.E+08	82.6	62.8	67.7	85.6	78.7
14	12-Jan-05	16:48:11	01:00.0	60	65.2	3.E+06	2.E+08	82.9	63.5	67.1	86	79.8
15	12-Jan-05	16:49:11	01:00.0	60	64.9	3.E+06	2.E+08	82.7	62.8	70.2	84.7	83
16	12-Jan-05	16:50:11	01:00.0	60	64.6	3.E+06	2.E+08	82.4	63.1	67.1	85	79.2
17	12-Jan-05	16:51:11	01:00.0	60	65	3.E+06	2.E+08	82.8	63.5	67.5	86.2	82.4
18	12-Jan-05	16:52:11	01:00.0	60	74.8	3.E+07	2.E+09	92.6	64.3	80.8	96.6	92.5
19	12-Jan-05	16:53:11	01:00.0	60	76.4	4.E+07	3.E+09	94.2	75.2	78	96.7	91.4
20	12-Jan-05	16:54:11	01:00.0	60	76.5	4.E+07	3.E+09	94.3	75.4	77.5	96.3	90.8
21	12-Jan-05	16:55:11	01:00.0	60	76.4	4.E+07	3.E+09	94.1	75.1	77.6	96.2	90.1
22	12-Jan-05	16:56:11	01:00.0	60	74.7	3.E+07	2.E+09	92.5	64.4	77.5	95.9	90.8
23	12-Jan-05	16:57:11	01:00.0	60	65.1	3.E+06	2.E+08	82.8	63.9	66.9	87.2	79.9
24	12-Jan-05	16:58:11	01:00.0	60	65.2	3.E+06	2.E+08	82.9	63.3	68.5	84.7	80
25	12-Jan-05	16:59:11	01:00.0	60	65.3	3.E+06	2.E+08	83	63.2	72	86.7	81.9
26	12-Jan-05	17:00:11	01:00.0	60	65.7	4.E+06	2.E+08	83.5	64.5	67.2	85.9	79.7
27	12-Jan-05	17:01:11	01:00.0	60	65.8	4.E+06	2.E+08	83.5	64.2	67.5	85.6	82.6
28	12-Jan-05	17:02:11	01:00.0	60	75	3.E+07	2.E+09	92.8	64.3	80.9	98.5	92.4
29	12-Jan-05	17:03:11	01:00.0	60	76.7	5.E+07	3.E+09	94.4	75.6	77.8	97.2	90.8
30	12-Jan-05	17:04:11	01:00.0	60	76.7	5.E+07	3.E+09	94.4	75.6	77.7	97.1	91.1
31	12-Jan-05	17:05:11	01:00.0	60	76.6	5.E+07	3.E+09	94.4	75.6	77.7	96.7	91.1
32	12-Jan-05	17:06:11	01:00.0	60	75.1	3.E+07	2.E+09	92.9	64.3	77.8	97.3	90.8
33	12-Jan-05	17:07:11	01:00.0	60	65.5	4.E+06	2.E+08	83.3	64.1	67.1	86.4	79.2
34	12-Jan-05	17:08:11	01:00.0	60	65	3.E+06	2.E+08	82.8	63.6	66.8	84.7	78.9
35	12-Jan-05	17:09:11	01:00.0	60	65.5	4.E+06	2.E+08	83.3	64.1	67.4	85.6	79.5
36	12-Jan-05	17:10:11	01:00.0	60	65.4	3.E+06	2.E+08	83.2	63.6	67.6	86	80
37	12-Jan-05	17:11:11	01:00.0	60	65	3.E+06	2.E+08	82.8	63.3	67.2	86.2	79.1
38	12-Jan-05	17:12:11	01:00.0	60	74.4	3.E+07	2.E+09	92.2	63.7	80.7	97.1	94
39	12-Jan-05	17:13:11	01:00.0	60	76.2	4.E+07	3.E+09	94	75	77.7	97.8	91.7
40	12-Jan-05	17:14:11	01:00.0	60	76.4	4.E+07	3.E+09	94.2	75.5	78.1	97	90.8
41	12-Jan-05	17:15:11	01:00.0	60	76.4	4.E+07	3.E+09	94.2	75.3	77.8	96.5	91.1
42	12-Jan-05	17:16:11	01:00.0	60	74.4	3.E+07	2.E+09	92.2	64.9	77.7	98	90.4
43	12-Jan-05	17:17:11	01:00.0	60	66	4.E+06	2.E+08	83.8	64.5	71.7	87.9	87.1
44	12-Jan-05	17:18:11	01:00.0	60	66.2	4.E+06	3.E+08	84	64.4	71.9	86.8	84.7
45	12-Jan-05	17:19:11	01:00.0	60	65.4	3.E+06	2.E+08	83.2	63.9	72.2	86.7	84.3
46	12-Jan-05	17:20:11	01:00.0	60	65.4	3.E+06	2.E+08	83.2	64.1	67	85.1	79.3
47	12-Jan-05	17:21:11	01:00.0	60	65.6	4.E+06	2.E+08	83.4	64.1	67.8	87.5	83.3
48	12-Jan-05	17:22:11	01:00.0	60	75	3.E+07	2.E+09	92.8	64.9	81.1	97.4	92.6
49	12-Jan-05	17:23:11	01:00.0	60	76.6	5.E+07	3.E+09	94.4	75.5	77.8	97.5	90.7
50	12-Jan-05	17:24:11	01:00.0	60	76.6	5.E+07	3.E+09	94.3	75.4	77.9	96.8	90.3
51	12-Jan-05	17:25:11	01:00.0	60	76.6	5.E+07	3.E+09	94.3	75.3	77.6	96.7	91.6

52	12-Jan-05	17:26:11	01:00.0	60	73.8	2.E+07	1.E+09	91.6	63	77.6	96.6	91.5
53	12-Jan-05	17:27:11	01:00.0	60	64.8	3.E+06	2.E+08	82.5	62.9	66.9	86.3	79
54	12-Jan-05	17:28:11	01:00.0	60	64.9	3.E+06	2.E+08	82.7	63.5	66.5	85.1	79.9
55	12-Jan-05	17:29:11	01:00.0	60	64.9	3.E+06	2.E+08	82.7	63.5	68	87.4	86.5
56	12-Jan-05	17:30:11	01:00.0	60	64.3	3.E+06	2.E+08	82.1	63	66.2	83.7	78.2
57	12-Jan-05	17:31:11	01:00.0	60	65	3.E+06	2.E+08	82.8	63.4	67.9	86.5	85.6
58	12-Jan-05	17:32:11	01:00.0	60	75.9	4.E+07	2.E+09	93.7	63.5	81.4	97	92.7
59	12-Jan-05	17:33:11	01:00.0	60	76.4	4.E+07	3.E+09	94.2	75.3	77.6	97.5	90.4
60	12-Jan-05	17:34:11	01:00.0	60	76.5	4.E+07	3.E+09	94.3	75.3	77.5	96.5	91
61	12-Jan-05	17:35:11	01:00.0	60	76.4	4.E+07	3.E+09	94.2	75.3	77.6	97.2	90.8
62	12-Jan-05	17:36:11	00:20.5	20.5	74.2	3.E+07	5.E+08	87.3	64.1	77.3	97.2	90.1
			1:01:20	3680.50								

Leq	73.3
Max Leq	76.7
Max Leq Time	16:13
Min Leq	62.6
Min Leq Time	16:18
Lmax	81.4
Lmin	61.1
Peak	94
Avg L90	67.9

SSA Intervals
Transla 17-Jan-05 23:01:05
File Tr C:\Program Files\larson davis\824 Utility\13Jan09s_007.slmdl
Model N 824
Serial ! A3007
Firmwar 4.23
Softwar 3.12
Name: EDAW, Inc.
Descr1: 1420 Kettner Blvd., Suite 620
Descr2: San Diego, CA 92020
Setup: 1min1sec.ssa
Setup D SLM & Real-Time Analyzer
Locatio Trinity Church
Note 1: ~~W~~ LOCATION 7
Note 2: W3 NOISE MEASUREMENT

Weighti A
Peak We Flat
Detecto Fast
RTA Det Fast

Rec #	Date	Time	Duration		Leq			SEL	LMin	LMax	UwPk	Peak
1	13-Jan-05	9:22:07	01:00.0	60	68.5	7.E+06	4.E+08	86.3	67	71.1	93.3	85.4
2	13-Jan-05	9:23:07	01:00.0	60	67.7	6.E+06	4.E+08	85.5	67.1	68.7	90.8	87
3	13-Jan-05	9:24:07	01:00.0	60	67.6	6.E+06	3.E+08	85.3	66.9	69	90.2	81.7
4	13-Jan-05	9:25:07	01:00.0	60	67.5	6.E+06	3.E+08	85.3	66.9	68.4	89.2	81.9
5	13-Jan-05	9:26:07	01:00.0	60	68	6.E+06	4.E+08	85.8	66.8	74.3	90.5	86.3
6	13-Jan-05	9:27:07	01:00.0	60	68.3	7.E+06	4.E+08	86	66.8	76.4	91.8	88
7	13-Jan-05	9:28:07	01:00.0	60	67.7	6.E+06	4.E+08	85.5	66.8	69	89.5	81.9
8	13-Jan-05	9:29:07	01:00.0	60	67.6	6.E+06	3.E+08	85.4	66.8	75.3	89.1	86.1
9	13-Jan-05	9:30:07	01:00.0	60	67.3	5.E+06	3.E+08	85.1	66.6	68	88.6	81.4
10	13-Jan-05	9:31:07	01:00.0	60	65.3	3.E+06	2.E+08	83.1	58.2	75.1	88.5	87.3
11	13-Jan-05	9:32:07	01:00.0	60	60.3	1.E+06	6.E+07	78	58.4	62.1	80	75.8
12	13-Jan-05	9:33:07	01:00.0	60	60.9	1.E+06	7.E+07	78.7	59.1	64.4	89.3	77.7
13	13-Jan-05	9:34:07	01:00.0	60	61.6	1.E+06	9.E+07	79.4	59.2	63.7	82.3	77.2
14	13-Jan-05	9:35:07	01:00.0	60	62	2.E+06	1.E+08	79.8	59.6	64.4	82.5	77.3
15	13-Jan-05	9:36:07	01:00.0	60	62.2	2.E+06	1.E+08	80	60	65.2	81.9	76.4
16	13-Jan-05	9:37:07	01:00.0	60	61.4	1.E+06	8.E+07	79.2	59.3	63.2	80.9	75.8
17	13-Jan-05	9:38:07	01:00.0	60	61.4	1.E+06	8.E+07	79.2	58.9	63.9	80.2	75.8
18	13-Jan-05	9:39:07	01:00.0	60	62.8	2.E+06	1.E+08	80.5	61.1	64.6	84.5	76.8
19	13-Jan-05	9:40:07	01:00.0	60	62.6	2.E+06	1.E+08	80.4	60.8	65.9	82	77.5
20	13-Jan-05	9:41:07	01:00.0	60	61.7	1.E+06	9.E+07	79.5	59.9	65.9	87.6	82.6
21	13-Jan-05	9:42:07	01:00.0	60	62.4	2.E+06	1.E+08	80.1	60	64.6	82.8	77.7
22	13-Jan-05	9:43:07	01:00.0	60	61.9	2.E+06	9.E+07	79.6	59.9	64.1	81.9	76.5
23	13-Jan-05	9:44:07	01:00.0	60	61.4	1.E+06	8.E+07	79.1	59.6	63.4	83.4	76
24	13-Jan-05	9:45:07	01:00.0	60	62.5	2.E+06	1.E+08	80.3	60	64.5	83.4	77.4
25	13-Jan-05	9:46:07	01:00.0	60	61.6	1.E+06	9.E+07	79.4	59.6	66.1	81.4	79
26	13-Jan-05	9:47:07	01:00.0	60	62.2	2.E+06	1.E+08	79.9	59.5	68.4	83.6	80.8
27	13-Jan-05	9:48:07	01:00.0	60	63.2	2.E+06	1.E+08	80.9	61.1	72.9	88	85.2
28	13-Jan-05	9:49:07	01:00.0	60	65.8	4.E+06	2.E+08	83.6	60.7	69.6	92.7	84.3
29	13-Jan-05	9:50:07	01:00.0	60	67.8	6.E+06	4.E+08	85.6	67.1	71	89.3	83.3
30	13-Jan-05	9:51:07	01:00.0	60	67.9	6.E+06	4.E+08	85.6	66.9	69.1	89.9	81.9
31	13-Jan-05	9:52:07	01:00.0	60	67.8	6.E+06	4.E+08	85.6	67.2	68.8	88.9	82
32	13-Jan-05	9:53:07	01:00.0	60	67.8	6.E+06	4.E+08	85.6	67	68.9	89	82.1
33	13-Jan-05	9:54:07	01:00.0	60	67.5	6.E+06	3.E+08	85.3	66.8	68.5	89	81.6
34	13-Jan-05	9:55:07	01:00.0	60	67.6	6.E+06	3.E+08	85.4	66.9	71.1	89.2	84.3
35	13-Jan-05	9:56:07	01:00.0	60	67.8	6.E+06	4.E+08	85.5	66.2	70.3	88.9	82.3
36	13-Jan-05	9:57:07	01:00.0	60	67.8	6.E+06	4.E+08	85.6	66.8	70.2	89.4	82.9
37	13-Jan-05	9:58:07	01:00.0	60	67.5	6.E+06	3.E+08	85.3	66.7	70.2	90.7	83.3
38	13-Jan-05	9:59:07	01:00.0	60	67.2	5.E+06	3.E+08	85	66.6	68.4	88.6	81.6
39	13-Jan-05	10:00:07	01:00.0	60	67	5.E+06	3.E+08	84.8	61.1	75.7	88.9	88.3
40	13-Jan-05	10:01:07	00:12.5	12.5	62.3	2.E+06	2.E+07	73.3	61.1	64.9	81.3	76.3
			39:12.5	2352.5								

Leq	65.9
Max Leq	68.5
Max Leq Time	9:22
Min Leq	60.3
Min Leq Time	9:32
Lmax	76.4
Lmin	58.2
Peak	88.3
Avg L90	63.7

SSA Intervals

Translated:	17-Jan-05 23:05:09
File Translated:	C:\Program Files\larson davis\824 Utility\13Jan14s_008.slmdl
Model Number:	824
Serial Number:	A3007
Firmware Rev:	4.23
Software Version:	3.12
Name:	EDAW,Inc.
Descr1:	1420 Kettner Blvd., Suite 620
Descr2:	San Diego, CA 92020
Setup:	1min1sec.ssa
Setup Descr:	SLM & Real-Time Analyzer
Location:	Trinity Church
Note 1:	~~M8 8~~ LOCATION 8
Note 2:	20' FROM FENCE OF PLAYGROUND
Weighting:	A
Peak Weighting:	Flat
Detector:	Fast
RTA Detector:	Fast

Rec #	Date	Time	Duration		Leq			SEL	LMin	LMax	UwPk	Peak
1	13-Jan-05	14:52:41	01:00.0	60	71.2	1.E+07	8.E+08	89	62.4	80.7	92	91.8
2	13-Jan-05	14:53:41	01:00.0	60	74	3.E+07	2.E+09	91.8	65.2	82.5	96.6	95.4
3	13-Jan-05	14:54:41	01:00.0	60	72.7	2.E+07	1.E+09	90.4	64.4	84.8	94.1	94
4	13-Jan-05	14:55:41	01:00.0	60	68.3	7.E+06	4.E+08	86.1	58.6	79.4	95.6	88.7
5	13-Jan-05	14:56:41	01:00.0	60	61.1	1.E+06	8.E+07	78.8	57	69	89.1	84.5
6	13-Jan-05	14:57:41	01:00.0	60	62.5	2.E+06	1.E+08	80.3	57.7	74.4	86.3	86.6
7	13-Jan-05	14:58:41	01:00.0	60	61.5	1.E+06	8.E+07	79.2	57	71.4	85.6	81.6
8	13-Jan-05	14:59:41	01:00.0	60	62.1	2.E+06	1.E+08	79.8	56.9	71.5	84.5	80.4
9	13-Jan-05	15:00:41	01:00.0	60	61.8	2.E+06	9.E+07	79.6	57.2	74.3	87.1	83.7
10	13-Jan-05	15:01:41	01:00.0	60	61.8	2.E+06	9.E+07	79.6	56.5	69.3	84.2	81.4
11	13-Jan-05	15:02:41	01:00.0	60	61.6	1.E+06	9.E+07	79.4	58.5	67	88.7	78.7
12	13-Jan-05	15:03:41	01:00.0	60	61.7	1.E+06	9.E+07	79.5	57.3	68.1	86	78.2
13	13-Jan-05	15:04:41	01:00.0	60	61.6	1.E+06	9.E+07	79.4	58.7	66.4	89.4	79.8
14	13-Jan-05	15:05:41	01:00.0	60	61	1.E+06	8.E+07	78.7	57.8	68.5	86.5	78.4
15	13-Jan-05	15:06:41	01:00.0	60	61.4	1.E+06	8.E+07	79.2	58.2	71.3	91.7	86
16	13-Jan-05	15:07:41	01:00.0	60	60.5	1.E+06	7.E+07	78.3	58.2	64.6	90.5	78.3
17	13-Jan-05	15:08:41	01:00.0	60	60.3	1.E+06	6.E+07	78.1	57.3	65.2	88	79.1
18	13-Jan-05	15:09:41	01:00.0	60	61.2	1.E+06	8.E+07	78.9	57.8	68	88.7	79.7
19	13-Jan-05	15:10:41	01:00.0	60	59.5	9.E+05	5.E+07	77.3	55.9	66.8	88.7	79.5
20	13-Jan-05	15:11:41	01:00.0	60	59.7	9.E+05	6.E+07	77.4	55.9	71.7	83.7	83.5
21	13-Jan-05	15:12:41	01:00.0	60	58.8	8.E+05	5.E+07	76.6	56.1	66.6	82.2	78.3
22	13-Jan-05	15:13:41	01:00.0	60	59.5	9.E+05	5.E+07	77.3	56	67.1	86.1	78.7
23	13-Jan-05	15:14:41	01:00.0	60	60.4	1.E+06	7.E+07	78.2	55.7	70.6	81.9	82
24	13-Jan-05	15:15:41	01:00.0	60	58.1	6.E+05	4.E+07	75.9	56.1	62	89.3	74
25	13-Jan-05	15:16:41	01:00.0	60	56.9	5.E+05	3.E+07	74.7	54.9	59.3	81.9	74.6
26	13-Jan-05	15:17:41	01:00.0	60	57.8	6.E+05	4.E+07	75.6	54.9	62.5	82.2	80.3
27	13-Jan-05	15:18:41	01:00.0	60	56.6	4.E+05	3.E+07	74.3	54.3	59.7	82.2	74.9
28	13-Jan-05	15:19:41	01:00.0	60	56.2	4.E+05	3.E+07	73.9	53.8	64.1	80.8	78.2
29	13-Jan-05	15:20:41	01:00.0	60	55.8	4.E+05	2.E+07	73.6	53.9	66.9	90.4	85.6
30	13-Jan-05	15:21:41	01:00.0	60	55.5	4.E+05	2.E+07	73.3	53.4	63.1	81.7	78.3
31	13-Jan-05	15:22:41	01:00.0	60	54.7	3.E+05	2.E+07	72.5	53.6	58	83.5	69.7
32	13-Jan-05	15:23:41	01:00.0	60	56	4.E+05	2.E+07	73.8	53.4	59.3	85.2	81.9
33	13-Jan-05	15:24:41	01:00.0	60	56	4.E+05	2.E+07	73.8	53.9	61.4	81.9	80.3
34	13-Jan-05	15:25:41	01:00.0	60	56.5	4.E+05	3.E+07	74.3	55.1	64.8	87.4	88
35	13-Jan-05	15:26:41	01:00.0	60	57.7	6.E+05	4.E+07	75.4	55.6	65.7	88.9	87.1
36	13-Jan-05	15:27:41	01:00.0	60	56.9	5.E+05	3.E+07	74.6	55.1	61.7	85.9	80.1
37	13-Jan-05	15:28:41	00:27.4	27.4	57.9	6.E+05	2.E+07	72.3	55.6	67.9	80.3	78.9
			36:27.4	2187.4								

Leq	64.1
Max Leq	74.0
Max Leq Time	14:35
Min Leq	54.7
Min Leq Time	15:22
Lmax	84.8
Lmin	53.4
Peak	95.4
Avg L90	57.9

Exhibit 2

Proposed Education Center

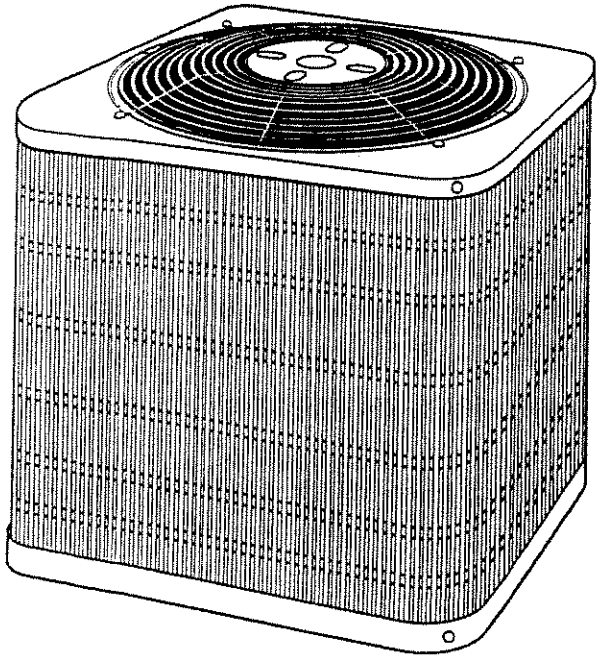
Carrier®
HEATING & COOLING

Product Data

38EZG (60 Hz) 12 SEER Air Conditioner with Puron® Refrigerant

Sizes 018 thru 060

38EZG060



Puron®
the environmentally sound refrigerant

Model 38EZG Energy-Efficient Air Conditioner incorporates innovative technology to provide quiet, reliable cooling performance. Built into these units are the features most desired by homeowners today, including SEER ratings of up to 14.0 when used with specific Carrier indoor sections. The 38EZG family has been designed utilizing Carrier's Puron® refrigerant. This environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer. All models are listed with UL (U.S. and Canada), ARI, and CEC. The 38EZG meets the Energy Star® guidelines for energy efficiency.

FEATURES/BENEFITS

Electrical Range — All units are offered in single phase 208/230v. The 38EZG 030 through 060 models are offered in 208/230v 3 phase.

Wide Range of Sizes — Available in 7 nominal sizes from 018 through 060 to meet the needs of residential and light commercial applications.

Puron Environmentally Sound Refrigerant — Puron is Carrier's brand name for a refrigerant designed to help protect the environment. R-22, the most commonly used refrigerant in home cooling systems today, is scheduled for future phase-out by the government because it contains chlorine, which harms the earth's protective ozone layer. Puron is an HFC refrigerant that does not contain chlorine, which means it does not harm the ozone layer. Puron is now in service in thousands of systems providing highly reliable, environmentally sound performance.

For specific R-22 refrigerant phase-out information, see your Carrier distributor.

Compressor — The Puron® compressor is more efficient than conventional compressors. Its simple design offers improved reliability. Each compressor is mounted on rubber isolators for additional sound reduction. For improved serviceability, all models are equipped with a compressor terminal plug. Continuous operation is approved down to 55°F (12.8°C) in the cooling mode. (See cooling performance tables.) Operation down to 0°F or -20°F is approved when low-ambient requirements are met.

WeatherArmor™ Cabinet — The access panels and top are protected with a galvanized coating, then treated with a layer of zinc phosphate to which a modified polyester powder coating is applied and baked on. This provides each unit with a hard, smooth finish that will last for many years.

WeatherArmor Grille provides:
- Easy to clean-natural clean.
- Lower maintenance cost.
- Lower service cost.
- Higher unit lifetime efficiency than most competitors.

The WeatherArmor Grille stops damage from sticks and marble-size hail proving its reliability, quality and toughness.

All screws on cabinet exterior are coated for a long-lasting, rust-resistant, quality appearance.

Totally Enclosed Fan Motor — Means greater reliability under adverse weather conditions and dependable performance for many years. The permanent-split-capacitor type motor was designed for optimum efficiency. Then, under extreme conditions, the motor was tested and qualified to help ensure the greatest reliability.

Unit Design — Copper tube, enhanced sine wave aluminum fin coil is designed for optimum heat transfer. Vertical air discharge carries sound and hot condenser air up and away from adjacent patio areas and foliage. Heat pump style drain pan for easy removal of water, dirt, and leaves.

Application Versatility — The 38EZG can be combined with a wide variety of evaporator coils and blower packages to provide quiet, dependable comfort. Unit can be installed on a roof or at ground level.

External Service Valves — Both service valves are brass, front seating type with sweat connections. Valves are externally located so refrigerant tube connections can be made quickly and easily. Each valve has a service port for ease of checking operating refrigerant pressures.

Easy Serviceability — One access panel provides access to electrical controls and compressor. Removal of wire dome gives access to fan motor and removal of the top gives access to the coil.

Compressor Protection — All compressors are protected by internal temperature and current sensitive overloads. An internal pressure relief is provided for high-pressure protection. Long term reliability is assured through the use of both high and low pressure switches. Also included is a liquid line filter drier designed to trap moisture and contaminants which could otherwise shorten the life of the system.

3-Phase Monitor Board — Control board that monitors the electrical phase and prevents compressor operation if wired incorrectly.

Limited Warranty — Standard 5-year limited warranty on all parts and 5-year limited warranty on the compressor.

CERTIFICATION APPLIES ONLY WHEN THE COMPLETE SYSTEM IS LISTED WITH ARI.

★As an ENERGY STAR® Partner, Carrier Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

CERTIFICATE NO. FM 28768

APPROVALS
ISO 9001
EN 29001
BS 5750 PART 1
ANSI/ASQC Q91

REGISTERED QUALITY SYSTEM

*Refer to the combination ratings in the Product Data Digest for system combinations that meet Energy Star® efficiency standards.

Model number nomenclature

38EZG 018 3 0 1

- 38EZG — Standard 12 SEER Split-System Air Conditioner
- 018 — Nominal Capacity
  - 018 — 18,000 Btuh
  - 024 — 24,000 Btuh
  - 030 — 30,000 Btuh
  - 036 — 36,000 Btuh
  - 042 — 42,000 Btuh
  - 048 — 48,000 Btuh
  - 060 — 60,000 Btuh
- 3 — Electrical
  - 3 — 208/230-1
  - 5 — 208/230-3
- 0 — Series
- 1 — Packaging

Physical data

UNIT SIZE–SERIES	018-30	024-30	030-30, 50	036-30, 50/31	042-30, 50	048-30, 50	060-30, 50/31, 51
OPERATING WEIGHT (Lb)	140	143	138	156	197	203	238
COMPRESSOR Type	Recip	Scroll		Scroll/Recip	Scroll		Scroll
REFRIGERANT	Puron® (R-410A)						
Control	TXV or AccuRater						
Charge (Lb) @ 15 Ft	4.75	5.00	5.50	5.75/6.25	6.38	7.13	9.75
CONDENSER FAN	Propeller Type, Direct Drive						
Air Discharge	Vertical						
Air Qty (CFM)	1700	1700	2000	2500/2400	2800	3000	3400
Motor HP	1/12	1/12	1/10	1/4/1/8	1/5	1/4	1/4
Motor RPM	1100	1100	1100	1100/825	825	1100	1100
CONDENSER COIL	Copper Tube, Aluminum Plate Fin						
Face Area (Sq ft)	9.94	11.59	10.77	12.42/14.8	14.8	14.8	22.2
Fins per In.	25	25	25	25	20	25	25
Rows	1	1	1	1	1	1	1
Circuits	2	2	2	2	2	2	3
VALVE CONNECT. (In. ID)	Sweat						
Vapor	5/8	5/8	3/4	3/4	7/8	7/8	7/8
Liquid	3/8						
REFRIG TUBES* (In. OD)							
Vapor (0–50 Ft Tube Length)	5/8	5/8	3/4	3/4	7/8	7/8	1-1/8
Vapor (Max Diameter for Long-Line Applications)	3/4	3/4	7/8	7/8	1-1/8	1-1/8	1-1/8
Liquid (0–50 Ft Tube Length)	3/8						
Liquid (For Long-Line Applications)	3/8						

* For tubing sets greater than 50 ft horizontal and/or 20 ft vertical differential, consult Residential Split System Long Line Application Guideline and Service Manual.

NOTE: See unit Installation Instructions for proper installation.

ACCURATER® PISTON CHART

UNIT SIZE-SERIES	PISTON* IDENTIFICATION NO.
018-30	52
024-30	61
030-30, 50	63
036-30, 50	70
036-31	67
042-30, 50	76
048-30, 50	76
060-30, 31, 50, 51	90

* Piston listed is for any approved non-capillary tube coil combination. Piston is shipped with outdoor unit and must be installed in an approved indoor coil.

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE*)

UNIT SIZE-SERIES	REQUIRED SUBCOOLING (°F)
018-30	10
024-30	10
030-30, 50	15
036-30, 50	12
036-31	15
042-30, 50	15
048-30, 50	15
060-31, 50, 51	15

*Must be a Puron® approved hard shutoff TXV.

Electrical data

UNIT SIZE-SERIES	V/PH	OPER VOLTS*		COMPRESSOR		FAN FLA	MCA	60°C MIN WIRE SIZE†	75°C MIN WIRE SIZE†	60°C MAX LENGTH (Ft)‡	75°C MAX LENGTH (Ft)‡	MAX FUSE** OR CKT BKR AMPS
		Max	Min	LRA	RLA							
018-30	208/230-1	253	187	48.0	8.7	0.5	11.3	14	14	70	69	20
024-30				61.0	13.5	0.5	17.4	14	14	45	43	25
030-30				72.5	14.7	0.8	19.2	14	14	41	39	30
036-30				83.0	15.4	1.4	20.7	12	12	60	57	30
036-31				93.0	16.7	0.8	21.7	12	12	57	54	30
042-30				105.0	18.6	1.1	24.4	10	10	81	77	40
048-30				109.0	20.5	1.4	27.0	10	10	74	70	40
060-30				158.0	27.6	1.4	35.9	8	8	86	82	60
060-31				145.0	30.0	1.4	39.0	8	8	78	74	60
030-50	208/230-3	253	187	63.0	10.4	0.8	13.8	14	14	65	62	20
036-50				77.0	12.2	1.4	16.7	14	14	54	51	25
042-50				88.0	13.7	1.1	18.2	14	14	49	47	25
048-50				91.0	14.7	1.4	19.8	12	12	73	69	30
060-50				137.0	18.1	1.4	24.0	10	10	96	91	40
060-51				120.0	17.6	1.4	23.4	10	10	96	91	40

* Permissible limits of the voltage range at which unit will operate satisfactorily. Operation outside these limits may result in unit failure.

† If wire is applied at ambient greater than 30°C (86°F), consult Table 310-16 of the NEC (ANSI/NFPA 70).
The ampacity of nonmetallic-sheathed cable (NM), trade name ROMEX, shall be that of 60°C (140°F) conductors, per the NEC (ANSI/NFPA 70) Article 336-26. If other than uncoated (non-plated), 60° or 75°C (140° or 167°F) insulation, copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (ANSI/NFPA 70).

‡ Length shown is as measured 1 way along wire path between the unit and service panel for a voltage drop not to exceed 2%.

** Time-delay fuse.

FLA — Full Load Amps
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
RLA — Rated Load Amps

NOTES:
1. Control circuit is 24v on all units and requires external power source.
2. Copper wire must be used from service disconnect to unit.
3. All motors/compressors contain internal overload protection.

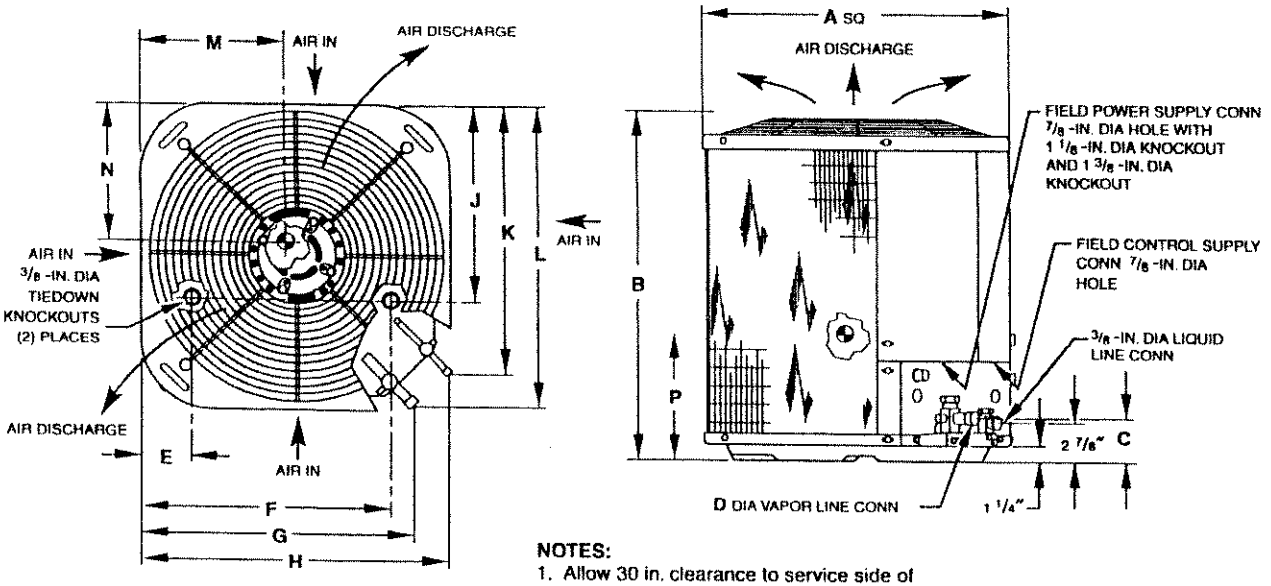
A-weighted sound power (dBA) (without sound blanket)

UNIT SIZE	STANDARD RATING	TYPICAL OCTAVE BAND SPECTRUM (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018	76	48.5	63.0	67.5	70.5	66.0	65.0	55.5
024	76	48.5	58.5	64.5	72.0	66.5	61.5	57.0
030	77	48.5	61.0	67.0	71.5	66.5	61.5	55.0
036-30, 50	79	57.5	63.0	68.0	74.5	70.5	65.0	58.5
036-31	80	50.0	68.0	72.0	73.5	67.5	64.5	57.0
042	79	53.5	67.0	68.0	71.5	71.0	63.5	59.5
048	80	55.0	68.0	71.0	73.0	70.5	67.0	61.5
060-30, 50	80	51.0	63.0	69.5	74.0	67.5	66.5	60.5
060-31, 51	80	53.0	61.0	66.0	71.5	70.5	64.5	57.5

Note: Tested in accordance with ARI Standard 270-95 (Not listed with ARI).

Sound level (dBA)

UNIT SIZE	W/ACCESSORY SOUND BLANKET
018	74
024	74
030	75
036-30, 50	76
036-31	76
042	77
048	78
060	78



NOTES:

1. Allow 30 in. clearance to service side of unit, 48 in. above unit, 6 in. on one side, 12 in. on remaining side, and 24 in. between units for proper airflow.
2. Minimum outdoor operating ambient in cooling mode is 55°F, max. 125°F.
3. Series designation is the 13th position of the unit model number.
4. Center of gravity ⊕.

A02358

DIMENSIONS (IN.)

UNIT SIZE	SERIES	A	B	C	D	E	F	G	H	J	K	L	M	N	P	MINIMUM MOUNTING PAD DIMENSIONS
018	30	22-1/2	27-15/16	3-3/16	5/8	3-11/16	18-1/8	19-3/4	22-1/4	14-3/8	19-9/16	22-1/16	10-1/4	9-1/2	11-1/2	22-1/2 x 22-1/2
024	30	22-1/2	31-15/16	3-3/16	5/8	3-11/16	18-1/8	19-3/4	22-1/4	14-3/8	19-9/16	22-1/16	10-1/4	9-1/2	11-5/8	22-1/2 x 22-1/2
030	30, 50	22-1/2	29-15/16	3-3/16	3/4	3-11/16	18-1/8	19-3/4	22-1/4	14-3/8	19-9/16	22-1/16	10-1/4	9-1/2	11-1/2	22-1/2 x 22-1/2
036	30, 50	22-1/2	33-15/16	3-3/16	3/4	3-11/16	18-1/8	19-3/4	22-1/4	14-3/8	19-9/16	22-1/16	10-1/4	9-1/2	15-1/2	22-1/2 x 22-1/2
036	31	30	27-15/16	3-1/4	3/4	6-1/2	23-1/2	27-1/4	29-3/4	20	27-1/16	29-9/16	15	13	14-1/2	30 x 30
042	30, 50	30	27-15/16	3-1/4	7/8	6-1/2	23-1/2	27-1/4	29-3/4	20	27-1/16	29-9/16	15	13	14-1/2	30 x 30
048	30, 50	30	27-15/16	3-1/4	7/8	6-1/2	23-1/2	27-1/4	29-3/4	20	27-1/16	29-9/16	15	13	14-1/2	30 x 30
060	30, 31, 50, 51	30	39-15/16	3-1/4	7/8	6-1/2	23-1/2	27-1/4	29-3/4	20	27-1/16	29-9/16	15-1/2	14-3/4	14-1/2	30 x 30

Combination ratings continued

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCE-MENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
048-30, 50	CK3BA048	44,500	TDR	12.00	—	12.00	10.35
	CK5A/CK5BA048	44,500	TDR	12.00	—	12.00	10.35
	CK5A/CK5BA060	45,000	TDR	12.00	—	12.00	10.55
	CK5A/CK5BX060	45,000	TDR	12.00	—	12.00	10.70
	CK5PA048	44,500	TDR&TXV	12.00	—	—	10.35
	CK5PA060	45,000	TDR&TXV	12.00	—	—	10.55
	CK5PX060	45,000	TDR&TXV	12.00	—	—	10.70
	COILS + 58MVP100-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	44,500	TDR	12.00	—	12.00	10.60
	CC5A/CD5AW060	45,500	TDR	12.50	—	12.50	10.85
	CD5AA048	44,500	TDR	12.00	—	12.00	10.40
	CK3BA048	44,500	TDR	12.00	—	12.00	10.65
	CK5A/CK5BA048	44,500	TDR	12.00	—	12.00	10.65
	CK5A/CK5BA060	45,000	TDR	12.00	—	12.00	10.85
	CK5A/CK5BX060	46,000	TDR	12.50	—	12.50	11.05
	CK5PA048	44,500	TDR&TXV	12.00	—	—	10.65
	CK5PA060	45,000	TDR&TXV	12.00	—	—	10.85
	CK5PX060	46,000	TDR&TXV	12.50	—	—	11.05
	COILS + 58MVP120-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	44,500	TDR	12.00	—	12.00	10.65
	CC5A/CD5AW048	45,000	TDR	12.00	—	12.00	10.65
	CC5A/CD5AW060	45,500	TDR	12.50	—	12.50	10.90
	CK5A/CK5BA060	45,000	TDR	12.00	—	12.00	10.90
	CK5A/CK5BW048	44,500	TDR	12.00	—	12.00	10.70
	CK5A/CK5BX060	46,000	TDR	12.50	—	12.50	11.05
	CK5PA060	45,000	TDR&TXV	12.00	—	—	10.90
	CK5PW048	44,500	TDR&TXV	12.00	—	—	10.70
	CK5PX060	46,000	TDR&TXV	12.50	—	—	11.05
060-30, 31, 50, 51	*CK5A/CK5BA060	58,000	NONE	—	12.00	12.00	10.35
	CC5A/CD5AA060	55,000	NONE	—	11.50	11.50	10.15
	CC5A/CD5AW060	58,000	NONE	—	12.00	12.00	10.35
	CE3AA060	58,000	NONE	—	12.00	12.00	10.45
	CK3BA060	58,000	NONE	—	12.00	12.00	10.35
	CK5A/CK5BT060	58,000	NONE	—	12.00	12.00	10.35
	CK5A/CK5BX060	58,000	NONE	—	12.00	12.00	10.50
	CK5PA060	58,000	TXV	—	12.00	—	10.35
	CK5PT060	58,000	TXV	—	12.00	—	10.35
	CK5PX060	58,000	TXV	—	12.00	—	10.50
	F(A,B)4BN(F,B,C)060	57,000	TDR	11.50	—	11.50	10.05
	FB4BNB070	58,000	TDR	12.00	—	12.00	10.45
	FC4CN(F,B)060	57,000	TDR&TXV	—	—	11.50	10.05
	FC4CNB070	58,000	TDR&TXV	—	—	12.00	10.45
	FG3AAA060	56,000	NONE	—	11.50	11.50	10.25
	FK4DNB006	58,000	TDR&TXV	12.50	—	—	11.00
	FV4BNB006	58,000	TDR&TXV	12.50	—	—	11.00
	FX4BNB060	58,000	TDR&TXV	12.00	—	—	10.45
	COILS + 58CV(A,X)110-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	56,000	TDR	12.00	—	12.00	10.35
	CD5PX060	58,000	TDR&TXV	12.50	—	—	10.70
	CE3AA060	57,000	TDR	12.00	—	12.00	10.70
	CK3BA060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BA060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BT060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BX060	58,000	TDR	12.50	—	12.50	10.85
	CK5PA060	58,000	TDR&TXV	12.00	—	—	10.60
	CK5PT060	58,000	TDR&TXV	12.00	—	—	10.60
	CK5PX060	58,000	TDR&TXV	12.50	—	—	10.85
	COILS + 58CV(A,X)135-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	56,000	TDR	12.00	—	12.00	10.30
	CC5A/CD5AW060	58,000	TDR	12.00	—	12.00	10.65
	CE3AA060	57,000	TDR	12.00	—	12.00	10.70
	CK3BA060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BA060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BT060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BX060	58,000	TDR	12.50	—	12.50	10.85
	CK5PA060	58,000	TDR&TXV	12.00	—	—	10.60
	CK5PT060	58,000	TDR&TXV	12.00	—	—	10.60
	CK5PX060	58,000	TDR&TXV	12.50	—	—	10.85
	COILS + 58CV(A,X)155-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	56,000	TDR	12.00	—	12.00	10.40
	CC5A/CD5AW060	58,000	TDR	12.00	—	12.00	10.70
	CE3AA060	57,000	TDR	12.00	—	12.00	10.75
	CK3BA060	58,000	TDR	12.00	—	12.00	10.65
	CK5A/CK5BA060	58,000	TDR	12.00	—	12.00	10.65
	CK5A/CK5BT060	58,000	TDR	12.00	—	12.00	10.65
	CK5A/CK5BX060	58,000	TDR	12.50	—	12.50	10.90
	CK5PA060	58,000	TDR&TXV	12.00	—	—	10.65
	CK5PT060	58,000	TDR&TXV	12.00	—	—	10.65
	CK5PX060	58,000	TDR&TXV	12.50	—	—	10.90

See notes on pg. 18.

Guide specifications

Air-Cooled, Split-System Air Conditioner
38EZG
1-1/2 to 5 Tons Nominal

GENERAL

System Description

Outdoor-mounted, air-cooled, split-system air conditioner unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

Quality Assurance

Unit will be rated in accordance with the latest edition of ARI Standard 210.

Unit will be certified for capacity, efficiency, and listed in the latest ARI directory.

Unit construction will comply with latest edition of ANSI/ ASHRAE and with NEC.

Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have c-UL approval.

Unit cabinet will be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500-hr salt spray test.

Air-cooled condenser coils will be leak tested at 250 psig and pressure tested at 450 psig.

Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling

Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)

U.S. and Canada only.

PRODUCTS

Equipment

Factory-assembled, single-piece, air-cooled air conditioner unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puron®, and special features required prior to field start-up.

Refrigerant

Refrigerant will be Puron® (R-410A) HFC refrigerant with zero ozone depletion potential. Puron® is approved under the EPA's Significant New Alternatives Program (SNAP).

Unit Cabinet

Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

Fans

Condenser fan will be direct-drive propeller type, discharging air upward.

Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated bearings.

Shafts will be corrosion resistant.

Fan blades will be statically and dynamically balanced.

Condenser fan openings will be equipped with PVC-coated steel wire safety guards.

Compressor

Compressor will be hermetically sealed.

Compressor will be mounted on rubber vibration isolators.

Condenser Coil

Condenser coil will be air cooled.

Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

Refrigeration Components

Refrigeration circuit components will include liquid-line shutoff valve with sweat connections, vapor-line shutoff valves with sweat connections, system charge of Puron® (R-410A) refrigerant, and compressor oil.

Operating Characteristics

The capacity of the unit will meet or exceed _____ Btuh at a suction temperature of _____ °F. The power consumption at full load will not exceed _____ kW.

Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of _____ Btuh or greater at conditions of _____ CFM entering air temperature at the evaporator at _____ °F wet bulb and _____ °F dry bulb, and air entering the unit at _____ °F.

The system will have a SEER of _____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

Nominal unit electrical characteristics will be _____ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.

Unit electrical power will be single point connection.

Control circuit will be 24v.

Special Features

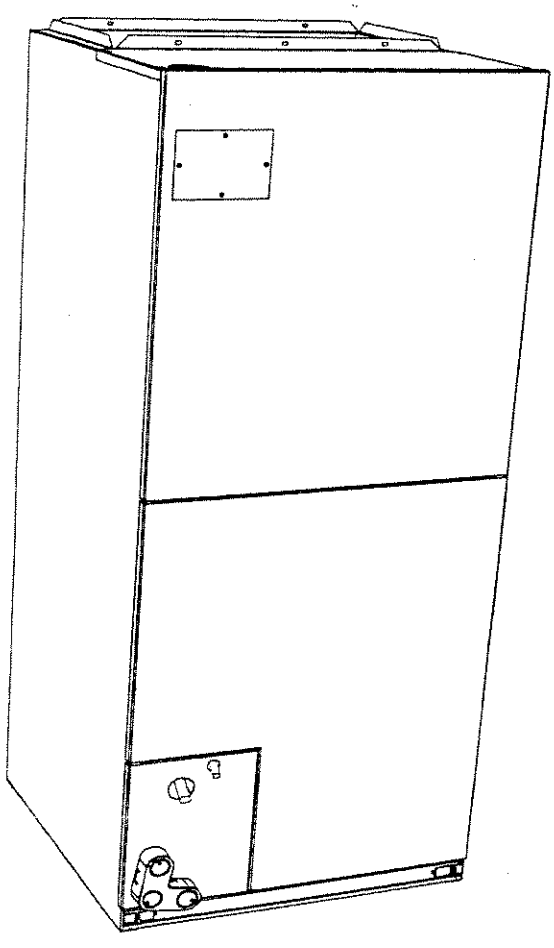
Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

Carrier®
HEATING & COOLING

Product Data

FX4B Direct Expansion Fan Coil with Puron® Refrigerant

Sizes 018, 030 thru 060



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Air Handling Technology At Its Finest

The FX4B is a Deluxe air handler that combines the superior performance and technology of Carrier fan coil units with Puron®, the environmentally sound refrigerant.

The FX4B boasts a complete list of features, starting with the Puron factory-installed Thermostatic Expansion Valve (TXV), which meters refrigerant with precision at all operating conditions during cooling mode, providing excellent efficiency and compressor protection. Because the TXV is factory installed, time is saved on the job site, and the TXV is protected inside the unit. Grooved copper tubing, louvered aluminum fins, and the large face areas of the FX4B refrigerant coils provide superior efficiency, for high SEER and HSPF performance. Coil circuiting has also been optimized for peak performance with WeatherMaker heat pumps and air conditioners featuring Puron.

The FX4B features patented contoured condensate pans with rugged, brass drain connections and highly wettable coils to minimize residual condensate. This condensate performance, along with corrosion free pans constructed from glass-filled polycarbonate engineering resin, provides additional benefits of improved IAQ and product life.

All of these featured components are protected within a rugged, prepainted metal cabinet lined with super thick, high density insulation. The unit exterior features sweat refrigerant connections for leak free performance, and multiple electrical

entry for both high and low voltage service, for quality appearance in all installation applications.

Further versatility of the FX4B is made possible by the multipoise (horizontal left and right, upflow and downflow) design which makes Carrier fan coils the benchmark for the industry.

Environmentally Sound operation; high levels of efficiency; quality appearance; ease of installation; reliable, compressor-protecting performance: That's the FX4B — in a class all of its own.

Features

Environmentally Sound Refrigerant Technology
- Puron®, chlorine-free, non-ozone depleting refrigerant
- Thermostatic Expansion Valve (TXV) designed to maximize performance with Puron

Energy Efficient Operation
- 12.00 to 13.00 SEER with the industry's first Puron Heat Pump
- 3-speed motors for flexible, efficient airflow performance

Airflow and Sound Technology
- Logarithmic spiral blower housings for high blower efficiency and quiet operation
- Diffuser air discharge section for high airflow efficiency and quiet, smooth operation
- High duct static capability with the high speed tap
- Unique cabinet design that meets new stringent regulations for air leakage. Meets requirements of a 2% cabinet leakage rate when tested at 1.0 inches of static pressure

Condensate Control and Disposal Technology
- Minimal standing water - less microbial growth for improved IAQ and reduced condensate line clogging and related condensate leakage
- Condensate fittings relocated away from turbulent airflow patterns at the blower entrance for improved condensate control performance
- Overflow feature for slope coil units allows condensate to exit the unit without damage to the product under clogged primary and secondary line conditions
- Tested for condensate disposal at conditions much more severe than those required by ARI
- Primary and secondary drain connections to comply with HUD
- All pans constructed of glass-filled polycarbonate engineering resin material
- High density, 1 inch thick cabinetry insulation with vapor barrier
- Cabinet construction features innovations designed to reduce cabinet sweating
- Prepainted galvanized sheet metal cabinet

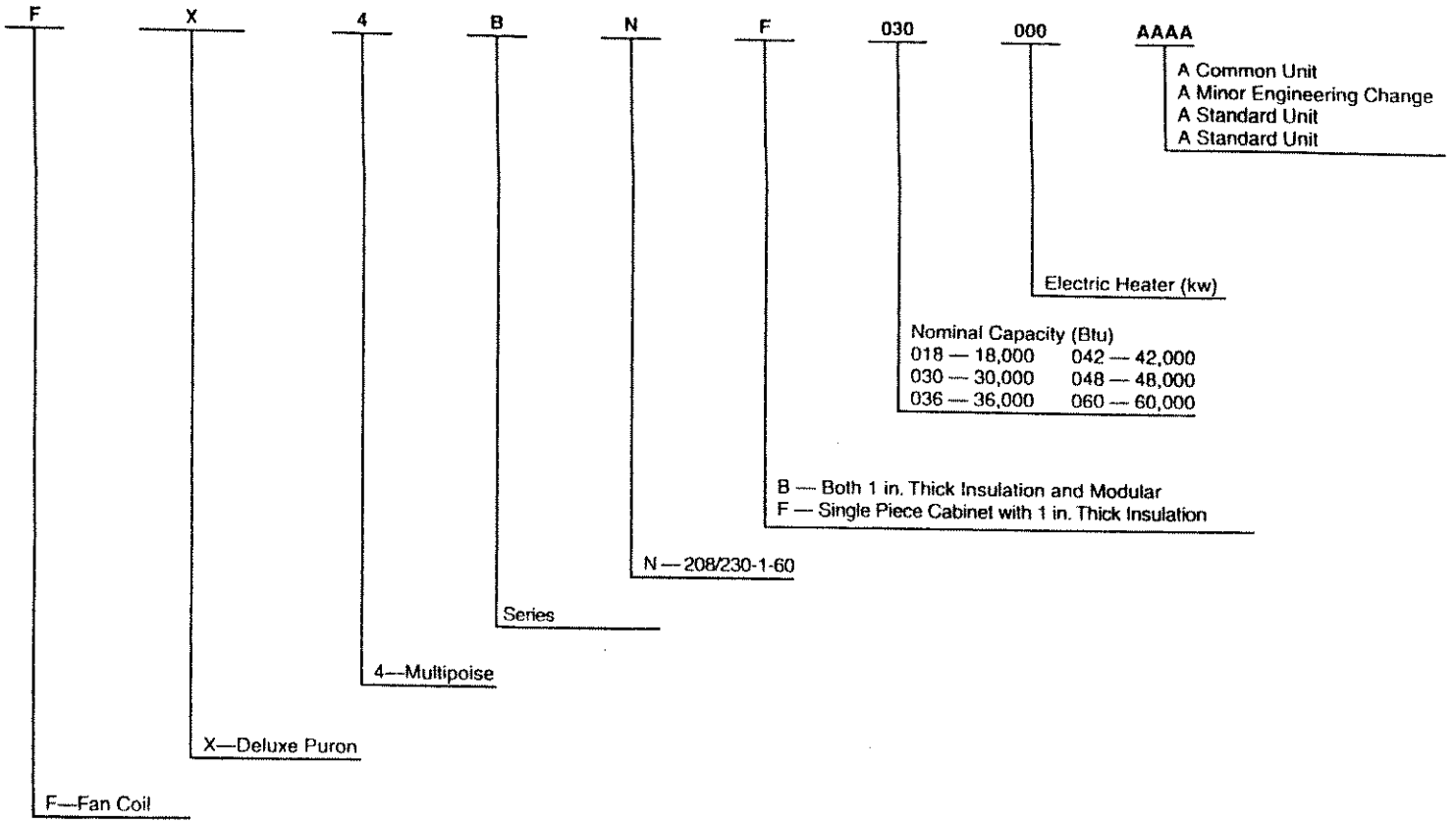
Heat Transfer Technology
- Grooved copper tubing
- Lanced sine wave aluminum fins
- Discreet refined counterflow refrigerant circuitry
- Bi-flow hard shut-off TXV metering device

Quality Assisting, Ease of Installation and Service Features
- All units multipoise
- Provision made for suspending from roof or ceiling joists
- Modular cabinet on 060 unit
- Sweat connections for leak free service
- Multiple electrical entry on for application flexibility (high and low voltage)
- Inspection plate on A-coil models for quick coil cleanliness inspection
- Cabinet construction features innovations designed to prevent cabinet sweating

Controls and Electrical Features
- Blower-off delay built in (defeatable)
- Easy plug connection for quick installation of accessory heater packages
- 40 VA 208/230 volt transformer
- Replaceable 5-amp blade-type auto fuse protects against transformer secondary short

Filter Features
- Factory supplied filter, cleanable polyester filter media
- Filter "springs" out for easy access - no tools required
- Newly improved filter rack area (bottom flange size increased for improved filter positioning)
- Newly improved filter rack area - filter door insulation added for an improved air seal

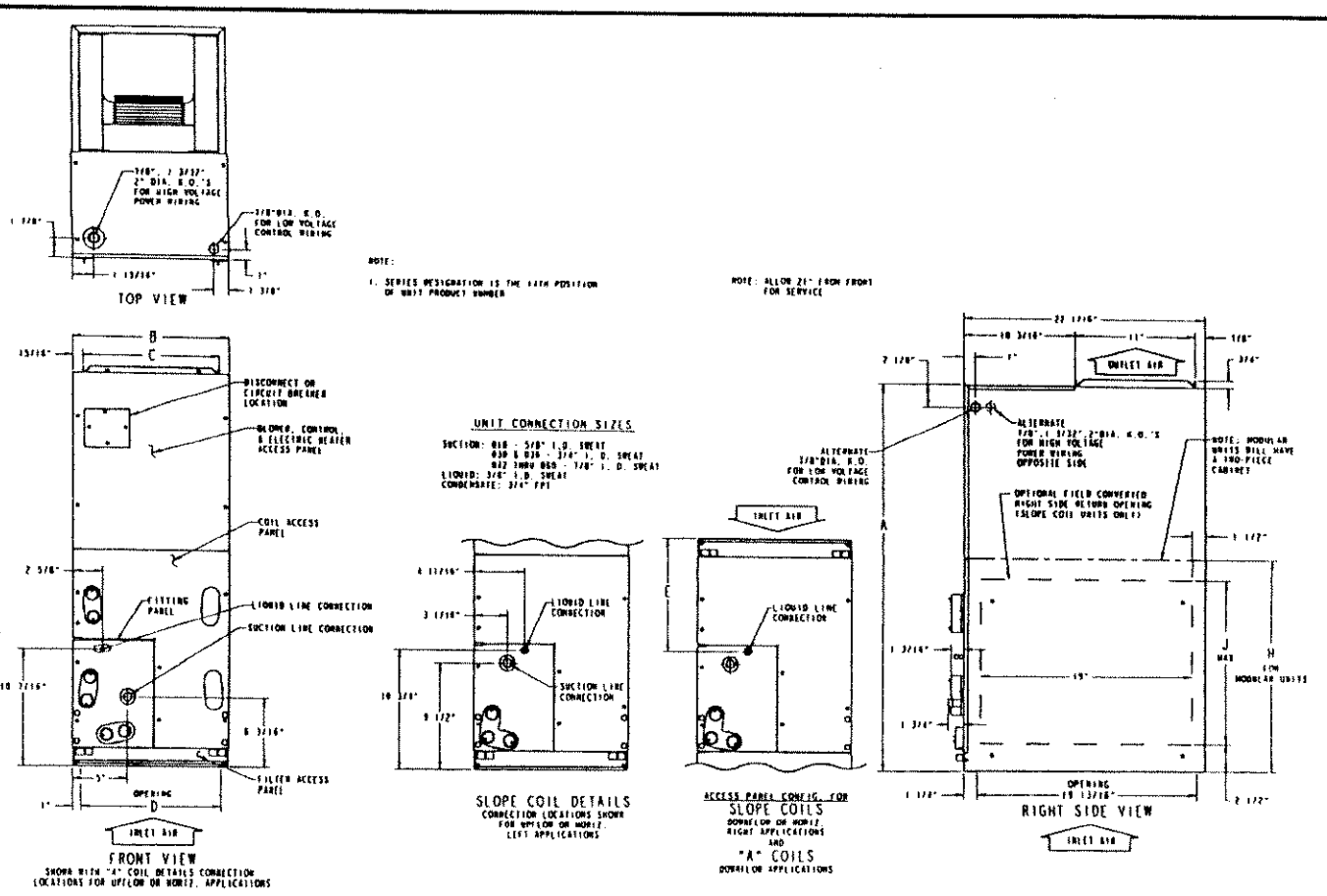
Model number nomenclature



REGISTERED
QUALITY SYSTEM

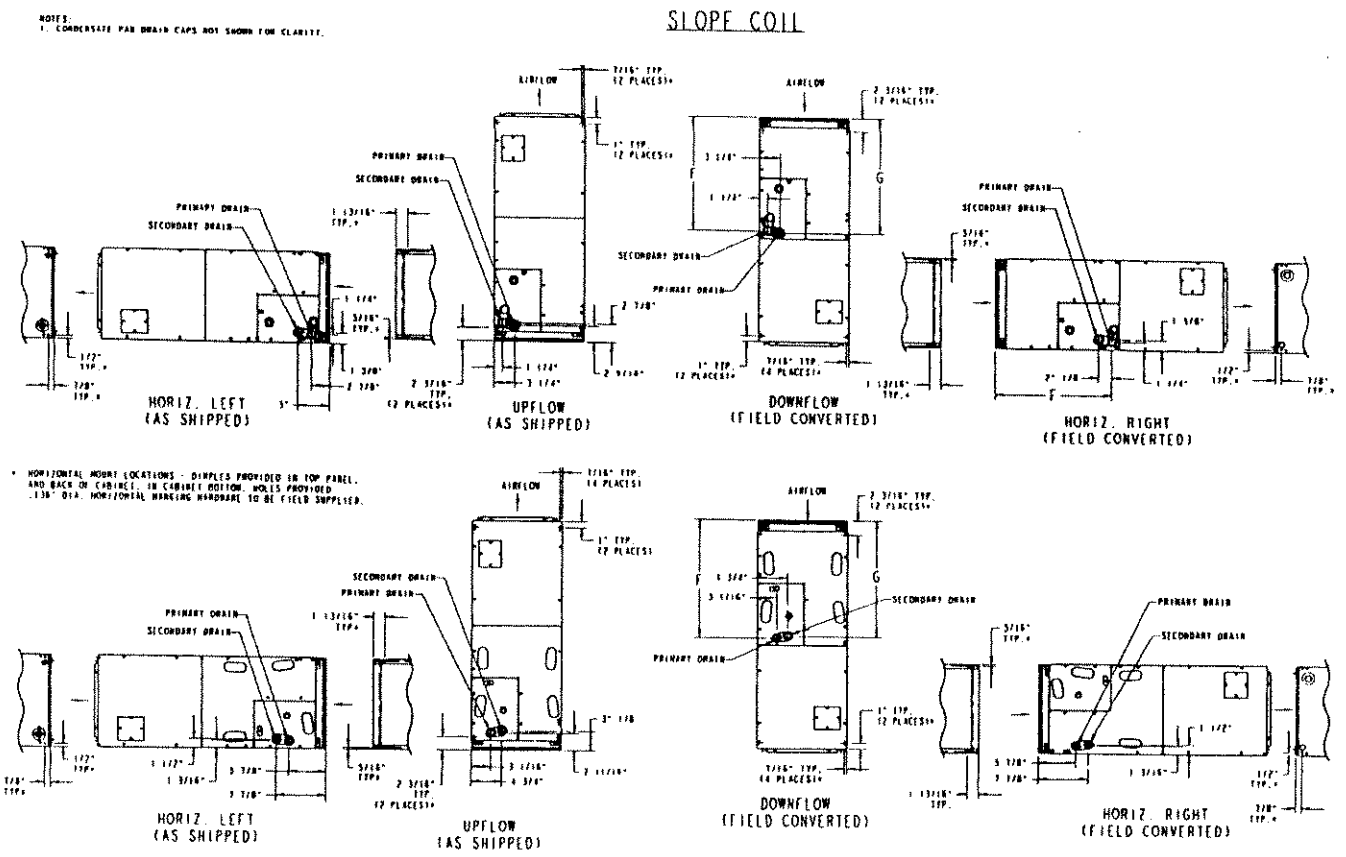
CERTIFICATION APPLIES ONLY WHEN THE
COMPLETE SYSTEM IS LISTED WITH ARI.

Dimensions



UNIT SIZE	COIL TYPE	A		B		C		D		E		Ht		J	
		In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
018	Slope	42-11/16	1084.3	14-5/16	363.6	12-7/16	316.0	12-5/16	312.7	10-7/16	265.1	—	—	12.0	304.8
030	Slope	47-5/8	1209.7	17-5/8	447.5	15-3/4	400.1	15-5/8	396.9	15-3/8	390.5	—	—	17.0	431.8
036	Slope	53-7/16	1357.3	21-1/8	536.5	19-1/4	489.0	19-1/8	485.8	19-3/16	487.0	—	—	19.0	482.6
042	A	49-5/8	1260.5	21-1/8	536.5	19-1/4	489.0	19-1/8	485.8	15-11/16	398.3	—	—	—	—
048	A	53-7/16	1357.3	21-1/8	536.5	19-1/4	489.0	19-1/8	485.8	19-1/2	495.3	—	—	—	—
060	A	59-3/16	1503.4	24-11/16	627.0	22-3/4	577.9	22-11/16	576.2	25-1/4	641.5	34-1/16	865.2	—	—

Dimensions continued



UNIT SIZE	COIL TYPE	F		G	
		In.	mm	In.	mm
018	Slope	18-1/2	460.4	18-5/8	473.1
030	Slope	23-1/8	587.4	23-5/8	600.0
036	Slope	26-15/16	684.2	27-1/2	698.5
042	A	23-7/16	593.3	23-1/8	587.4
048	A	27-1/4	692.2	26-15/16	684.2
060	A	32-15/16	836.6	32-5/8	828.7

Physical data

MODEL FX4B	018	030	036	042	048	060
SHIPPING WT (Lb)	112	125	150	163	172	207
REFRIGERANT METERING DEVICE	Puron (R-410A) Bypass Hard Shut-off TXV*					
TXV SIZE	2 ton	2 ton	3 ton	3 ton	4 ton	5 ton
COIL						
Rows and Fins Per In.	3 and 14.5	3 and 14.5	3 and 14.5	3 and 14.5	3 and 14.5	3 and 14.5
Face Area (Sq Ft)	2.23	2.97	3.46	4.45	5.93	7.42
Configuration	Slope	Slope	Slope	A	A	A
FAN						
Air Discharge						
CFM (Nominal)	850	1100	1300	1500	1700	2000
Motor Hp (PSC)	1/4	1/3	1/3	1/2	3/4	3/4
FILTER	21-1/2 x 13	21-1/2 x 16-3/8	21-1/2 x 19-7/8			21-1/2 x 23-5/16

* Fan coil units with hard shut-off TXV may require compressor hard start components. Refer to outdoor unit specifications.

Performance data

AIRFLOW PERFORMANCE (CFM)

MODEL AND SIZE	BLOWER MOTOR SPEED	TOTAL EXTERNAL STATIC PRESSURE (IN. WC)											
		0.10		0.20		0.30		0.40		0.50		0.60	
		208V	230V	208V	230V	208V	230V	208V	230V	208V	230V	208V	230V
FX4B 018	High	945	975	900	930	840	870	780	805	695	725	560	595
	Medium	835	900	795	855	745	800	690	740	610	650	470	510
	Low	605	695	575	665	530	625	485	580	425	510	340	395
FX4B 030	High	1230	1291	1163	1209	1083	1120	982	1036	886	918	804	799
	Medium	1055	1164	1012	1103	946	1039	863	958	797	843	691	757
	Low	846	982	822	946	779	890	733	816	676	734	590	589
FX4B 036	High	1497	1565	1428	1484	1364	1430	1313	1365	1234	1280	1149	1189
	Medium	1262	1390	1225	1340	1179	1280	1130	1236	1058	1161	993	1080
	Low	1080	1236	1037	1180	1004	1141	958	1091	923	1027	860	959
FX4B 042	High	1580	1710	1540	1655	1495	1595	1440	1530	1375	1445	1290	1355
	Medium	1400	1570	1375	1525	1350	1480	1305	1425	1255	1360	1175	1280
	Low	1195	1375	1180	1350	1165	1325	1135	1285	1085	1240	1020	1160
FX4B 048	High	1846	1890	1779	1802	1685	1709	1586	1611	1479	1493	1365	1380
	Medium	1745	1824	1673	1744	1598	1661	1507	1560	1409	1466	1305	1335
	Low	1494	1661	1438	1573	1395	1507	1320	1424	1225	1320	1121	1224
FX4B 060	High	2205	2285	2130	2205	2050	2120	1960	2025	1875	1930	1790	1825
	Medium	1880	2075	1845	2015	1795	1945	1745	1870	1675	1790	1595	1700
	Low	1570	1825	1560	1795	1545	1745	1520	1700	1480	1640	1420	1565

1. Not recommended for use above 0.60 in. external static pressure.
2. To avoid potential for condensate blowing out of drain pan prior to making drain trap:
   —Return static pressure must be less than 0.4 in. wc
   —Horizontal applications of 048-070 sizes must have supply static greater than 0.20 in. wc

Airflow outside max ARI airflow of 450 cfm/ton on 018-054 sizes
Airflow above 400 cfm/ton on 060-070 sizes. Airflows in this region could result in condensate blowing off coil or splashing out of drain pan.

Performance data continued

MINIMUM CFM AND MOTOR SPEED SELECTION

FAN COIL SIZES FX	HEATER KW									
	3	5	8	9	10	15	18	20	24	30
018	700	700	700	—	700	775*	—	—	—	—
030	—	875	875	—	875	875	—	1060	—	—
036	—	1050	970	970	970	920	—	1040	—	—
042	—	—	1225	1225	1225	1225	1225	1225	—	—
048	—	—	1400	1400	1400	1400	1400	1400	1400	1400
060	—	—	1750	1750	1750	1750	1750	1750	1750	1750

*Indicates medium speed (blue). All other motor speeds at low tap.

FACTORY-INSTALLED FILTER STATIC PRESSURE DROP (IN. WC)

UNIT SIZE	CFM							
	600	800	1000	1200	1400	1600	1800	2000
018	0.044	0.750	0.110	—	—	—	—	—
030	—	0.048	0.072	0.100	—	—	—	—
036	—	—	0.072	0.100	0.130	—	—	—
042	—	—	—	0.070	0.092	0.120	—	—
048	—	—	—	—	0.092	0.120	0.152	—
060	—	—	—	—	—	0.086	0.105	0.130

ELECTRIC HEATER STATIC PRESSURE DROP (IN. WC)

018, 030, 036

HEATER ELEMENTS	KW	EXTERNAL STATIC PRESSURE CORRECTION
0	0	+.02
1	3, 5	+.01
2	8, 10	0
3	9, 15	–.02
4	20	–.04

042–060

HEATER ELEMENTS	KW	EXTERNAL STATIC PRESSURE CORRECTION
0	0	+.04
2	8, 10	+.02
3	9, 15	0
4	20	–.02
6	18, 24, 30	–.10

The airflow performance data was developed using fan coils with 10-kw electric heaters (2 elements) in the 018, 030, and 036 size units and 15-kw heaters (3 elements) in the 042 through 060 size units. For fan coils with heaters of a different number of elements, the external available static at a given CFM from the curve may be corrected by adding or subtracting available external static pressure as indicated above.

AIR DELIVERY PERFORMANCE CORRECTION COMPONENT PRESSURE DROP (IN. WC) AT INDICATED AIRFLOW (DRY-TO-WET COIL)

UNIT SIZE	CFM									
	500	600	700	800	900	1000	1100	1200	1300	1350
018	0.035	0.051	0.066	0.080	0.091	—	—	—	—	—
030	—	—	—	0.051	0.063	0.073	0.081	—	—	—
036	—	—	—	—	—	0.073	0.081	0.091	0.098	0.102

UNIT SIZE	CFM								
	1200	1300	1400	1500	1600	1700	1800	1900	2000
042	0.075	0.083	0.091	0.098	—	—	—	—	—
048	—	—	0.066	0.073	0.080	0.086	0.091	—	—
060	—	—	—	—	0.030	0.034	0.039	0.044	0.053

NOTE: Subtract the above pressure drop corrections from unit airflow data when that component or condition is used. The remaining external static pressure will be available for the duct system.

Performance data continued

GROSS COOLING CAPACITIES (MBH)

UNIT	EVAPORATOR AIR CFM AND BF	COIL REFRIGERANT TEMPERATURE (°F)*														
		35			40			45			50			55		
		Evaporator Air — Entering Wet-Bulb Temp (°F)														
		72	67	62	72	67	62	72	67	62	72	67	62	72	67	62
FX4B 018	600	39	33	27	36	29	23	31	24	18	27	19	15	21	14	12
	0.05	19	20	22	17	19	20	15	16	17	13	14	15	11	12	12
	700	42	35	29	38	31	25	34	27	20	29	21	17	23	16	14
	0.06	20	22	24	18	20	22	17	18	20	15	16	17	13	14	14
	875	47	39	32	42	35	28	38	30	23	32	24	20	26	18	17
	0.08	22	25	28	21	23	26	19	21	23	17	19	20	15	16	17
FX4B 030	700	53	44	35	48	38	29	42	32	23	36	25	19	28	17	16
	0.17	25	27	28	23	24	25	20	22	22	18	19	19	15	15	16
	875	60	50	40	55	44	34	48	37	27	41	29	23	32	20	19
	0.20	28	31	33	26	28	30	23	25	27	21	22	23	17	19	19
	1050	66	55	44	60	49	38	53	41	31	45	33	27	36	23	22
	0.23	31	35	38	29	32	35	26	29	31	23	26	27	20	22	22
	1125	68	57	46	62	50	40	55	43	33	47	34	28	37	24	23
	0.24	32	36	40	30	33	36	27	30	32	24	27	28	21	23	23
FX4B 036	800	59	48	38	53	42	32	46	35	24	39	27	20	30	18	16
	0.20	28	29	31	25	27	28	22	23	24	19	20	20	16	16	16
	1000	68	56	45	61	49	37	54	41	29	45	32	25	35	22	20
	0.22	32	34	37	29	31	33	26	28	28	23	24	25	19	20	20
	1200	75	62	49	68	54	42	60	45	34	50	36	29	40	25	23
	0.25	35	39	42	32	36	38	29	32	33	26	28	29	22	23	23
	1400	80	67	54	73	59	46	64	49	38	54	39	32	43	28	27
	0.27	38	43	47	35	39	43	32	36	37	28	32	32	24	26	27
FX4B 042	1000	69	57	46	62	50	39	54	42	31	45	33	25	35	23	20
	0.05	33	35	37	30	32	33	26	28	29	23	24	25	19	20	20
	1200	77	63	51	69	55	44	61	47	35	51	37	29	39	26	24
	0.07	36	39	42	33	36	38	29	32	34	26	28	29	22	23	24
	1350	82	68	55	74	59	46	65	50	38	54	39	31	42	28	26
	0.08	39	43	46	35	39	41	32	35	37	28	30	31	23	26	26
	1530	87	72	59	79	64	50	69	53	41	58	42	34	46	30	28
	0.09	41	46	50	38	42	45	34	38	40	30	33	34	26	28	28
FX4B 048	1200	83	69	56	75	61	48	66	52	39	56	41	32	45	30	26
	0.05	39	43	46	36	39	42	32	35	37	28	31	32	24	26	26
	1400	90	75	61	82	66	53	72	57	43	61	45	36	49	33	30
	0.06	42	47	51	39	43	47	35	39	42	31	34	36	27	29	30
	1600	95	79	65	87	71	56	77	60	47	66	48	40	52	36	33
	0.07	45	51	55	42	47	51	38	42	46	34	38	40	29	32	33
	1750	99	83	68	90	74	59	80	63	50	69	51	42	55	37	35
	0.08	47	53	59	44	49	54	40	45	49	36	40	42	31	34	35
FX4B 060	1300	91	74	60	81	65	51	72	55	41	60	44	31	48	31	26
	0.03	43	46	48	39	41	43	35	37	38	30	32	31	25	27	26
	1600	104	85	69	94	76	59	83	64	47	70	51	38	55	37	31
	0.05	49	53	57	45	49	51	40	44	45	35	38	38	30	32	31
	1750	109	91	73	99	80	63	87	68	51	74	54	41	58	39	33
	0.05	52	57	61	47	52	55	43	47	49	38	41	41	32	35	33
	2000	117	97	80	106	86	68	94	74	56	80	59	45	64	43	38
	0.06	56	62	67	51	57	61	46	51	54	41	45	45	35	39	38

See notes on pg. 10.

Accessory electric heaters

HEATER PART NO.	KW @ 240V	VOLTS/PH	STAGES (KW OPERATING)	INTERNAL CIRCUIT PROTECTION	FAN COIL SIZE USED WITH	HEATING CAP.** @ 230V
KFCEH0401N03	3	230/1	3	None	018	9,400
KFCEH0501N05	5	230/1	5	None	030-048	15,700
KFCEH0801N08	8	230/1	8	None	030-060	25,100
KFCEH0901N10	10	230/1	10	None	030-060	31,400
KFCEH3201F20	20	230/1	5, 20	Fuse‡	030-060	62,800
KFCEH1601315	15	230/3	5, 15	None	036-060	47,100
KFCEH2001318	18	230/3	6, 12, 18	None	042-060	56,500
KFCEH3401F24	24	230/3*	8, 16, 24	Fuse	048, 060	78,300
KFCEH3501F30	30	230/3*	10, 20, 30	Fuse	048, 060	94,100
KFCEH2401C05	5	230/1	5	Circuit Breaker	030-048	15,700
KFCEH2501C08	8	230/1	8	Circuit Breaker	030-060	25,100
KFCEH2601C10	10	230/1	10	Circuit Breaker	030-060	31,400
KFCEH3301C20	20	230/1	5, 20	Circuit Breaker	030-060	62,800
KFCEH2901N09	9	230/1†	3, 9	None	030-060	28,200
KFCEH3001F15	15	230/1	5, 15	Fuse‡	030-060	47,100
KFCEH3101C15	15	230/1	5, 15	Circuit Breaker	030-060	47,100

Smart heat

HEATER PART NO.	KW @ 240V	VOLTS/PH	STAGES (KW OPERATING)	INTERNAL CIRCUIT PROTECTION	FAN COIL SIZE USED WITH	HEATING CAP.** @ 230V
KFCEH0101H10	9	230/1	3, 6, 9	None‡	018, 030, 036	31,400
KFCEH0201H15	15	230/1	3, 8, 11, 15	Fuse	024, 030, 036, 048	47,100
KFCEH0301H20	20	230/1	5, 10, 15, 20	Fuse	030-060	62,800

* Field convertible to 1 phase.
† Field convertible to 3 phase.
‡ Single point wiring kit required for these heaters in Canada.
** Blower motor heat not included.

When using units with 20-, 24-, and 30-kw electric heaters, maintain a 1-in. clearance from combustible materials to discharge plenum and ductwork and maintain a distance of 36 in. from the unit. Use an accessory downflow base to maintain proper clearance on downflow installations.
Use flexible connectors between ductwork and unit to prevent transmission of vibration. When electric heater is installed, use heat resistant material for flexible connector between ductwork and unit at discharge connection. Ductwork passing through unconditioned space must be insulated and covered with vapor barrier.

Electric heater electrical data

HEATER PART NO.	KW		PHASE	INTERNAL CIRCUIT PROTECTION	HEATER AMPS 208/230V			BRANCH CIRCUIT												
								Min Ampacity 208/230V**			Min Wire Size (AWG) 208/230V††			Min Gnd Wire Size 208/230V			Max Fuse/Ckt Bkr Amps 208/230V			Max Wire Length 208/230V (Ft)‡‡		
	240v	208v			Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4
KFCEH0401N03	3	2.3	1	None	10.9/12.0	—	—	15.9/17.3	—	—	12/12	—	—	12/12	—	—	20/20	—	—	67/68	—	—
KFCEH0501N05[1]	5	3.8	1	None	18.1/20.0	—	—	26.0/28.4	—	—	10/10	—	—	10/10	—	—	30/30	—	—	66/66	—	—
KFCEH0501N05[2]	5	3.8	1	None	18.1/20.0	—	—	31.2/33.5	—	—	8/8	—	—	10/10	—	—	35/35	—	—	85/88	—	—
KFCEH2401C05[1]	5	3.8	1	Ckt Bkr	18.1/20.0	—	—	26.0/28.4	—	—	10/10	—	—	10/10	—	—	30/30	—	—	66/66	—	—
KFCEH2401C05[2]	5	3.8	1	Ckt Bkr	18.1/20.0	—	—	31.2/33.5	—	—	8/8	—	—	10/10	—	—	35/35	—	—	85/88	—	—
KFCEH0801N08	8	6.0	1	None	28.9/32.0	—	—	44.7/48.5	—	—	8/8	—	—	10/10	—	—	45/50	—	—	59/60	—	—
KFCEH2501C08	8	6.0	1	Ckt Bkr	28.9/32.0	—	—	44.7/48.5	—	—	8/8	—	—	10/10	—	—	45/50	—	—	59/60	—	—
KFCEH2901N09***‡	9	6.8	1	None	32.8/36.0	—	—	49.5/53.5	—	—	8/6	—	—	10/10	—	—	50/60	—	—	54/87	—	—
	9	6.8	3	None	18.8/20.8	—	—	32.0/34.5	—	—	8/8	—	—	10/10	—	—	35/35	—	—	83/85	—	—
KFCEH0901N10	10	7.5	1	None	36.2/40.0	—	—	53.8/58.5	—	—	6/6	—	—	10/10	—	—	60/60	—	—	78/80	—	—
KFCEH2601C10	10	7.5	1	Ckt Bkr	36.2/40.0	—	—	53.8/58.5	—	—	6/6	—	—	10/10	—	—	60/60	—	—	78/80	—	—
KFCEH3001F15***	15	11.3	1	Fuse	54.2/59.9	36.2/40.0	18.1/20.0	76.3/83.4	53.8/58.5	22.7/25.0	4/4	6/6	10/10	8/8	10/10	10/10	80/90	60/60	25/25	88/89	78/80	75/75
KFCEH3101C15***	15	11.3	1	Ckt Bkr	—	36.2/40.0	18.1/20.0	—	53.8/58.5	22.7/25.0	—	6/6	10/10	—	10/10	10/10	—	60/60	25/25	—	78/80	75/76
KFCEH1601315	15	11.3	3	None	31.3/34.6	—	—	47.7/51.8	—	—	8/6	—	—	10/10	—	—	50/60	—	—	56/90	—	—
KFCEH2001318	18	13.5	3	None	37.6/41.5	—	—	55.5/60.4	—	—	6/6	—	—	10/8	—	—	60/70	—	—	76/77	—	—
KFCEH3201F20***	20	15.0	1	Fuse	72.3/79.9	36.2/40.0	36.2/40.0	98.9/108.4	53.8/58.5	45.3/50.0	3/2	6/6	8/8	8/6	10/10	10/10	100/110	60/60	50/50	85/109	78/80	59/59
KFCEH3301C20***	20	15.0	1	Ckt Bkr	—	36.2/40.0	36.2/40.0	—	53.8/58.5	45.3/50.0	—	6/6	8/8	—	10/10	10/10	—	60/60	50/50	—	78/80	59/59
KFCEH3401F24†***	24	18.0	3	Fuse	50.1/55.4	—	—	71.2/77.8	—	—	4/4	—	—	8/8	—	—	80/80	—	—	94/95	—	—
	24	18.0	1	Fuse	86.7/95.5	—	—	116.9/127.9	—	—	1/1	—	—	6/6	—	—	125/150	—	—	115/116	—	—
KFCEH3501F30†***	30	22.5	3	Fuse	62.6/69.2	—	—	86.8/95.0	—	—	3/3	—	—	8/8	—	—	90/100	—	—	97/98	—	—
	30	22.5	1	Fuse	109.0/120.0	—	—	144.8/158.5	—	—	0/00	—	—	6/6	—	—	150/175	—	—	117/150	—	—

SMART HEAT ELECTRICAL DATA

HEATER PART NO.	KW		PHASE	INTERNAL CIRCUIT PROTECTION	HEATER AMPS 208/230V			BRANCH CIRCUIT												
								Min Ampacity 208/230V**			Min Wire Size (AWG) 208/230V††			Min Gnd Wire Size 208/230V			Max Fuse/Ckt Brk Amps 208/230V			Max Wire Length 208/230V (Ft)‡‡		
	240v	208v			Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4	Single Circuit	Dual Circuit L1,L2	Dual Circuit L3,L4
KFCEH0101N10	10	7.5	1	None	32.5/35.9	—	—	44.0/48.3	—	—	8/8	—	—	10/10	—	—	45/50	—	—	60/61	—	—
KFCEH0201H15	15	11.3	1	Fuse	54.2/59.9	39.7/43.9	14.4/16.0	73.2/80.3	49.7/54.9	23.4/25.4	4/4	6/6	10/10	8/8	10/10	10/10	80/90	50/60	25/30	92/92	53/85	73/74
KFCEH0301H20	20	15.0	1	Fuse	72.3/79.9	36.2/40.0	36.2/40.0	97.2/106.7	52.0/56.8	45.3/50.0	3/2	6/6	8/8	8/6	10/10	10/10	100/110	60/60	50/50	87/111	81/82	93/93

FIELD MULTIPOINT WIRING OF 24-AND 30-KW SINGLE PHASE

HEATER PART NO.	KW		PHASE	HEATER AMPS 208/230V			MIN AMPACITY 208/230V**			MIN WIRE SIZE (AWG) 208/230V††			MIN GND WIRE SIZE 208/230V	MAX FUSE/CKT BKR AMPS 208/230V			MAX WIRE LENGTH 208/230V (FT)‡‡		
	240V	208V		L1,L2	L3,L4	L5,L6	L1,L2	L3,L4	L5,L6	L1,L2	L3,L4	L5,L6		L1,L2	L3,L4	L5,L6	L1,L2	L3,L4	L5,L6
KFCEH3401F24†***	24	18.0	1	28.9/32.0	28.9/32.0	28.9/32.0	44.7/48.5	36.2/40.0	36.2/40.0	8/8	8/8	8/8	10/10	45/50	40/40	40/40	59/60	73/73	73/73
KFCEH3501F30†***	30	22.5	1	36.2/40.0	36.2/40.0	36.2/40.0	53.8/58.5	45.3/50.0	45.3/50.0	6/6	8/8	8/8	10/10	60/60	50/50	50/50	78/80	59/59	59/59

† Field convertible to 1 phase, single or multiple supply circuit.
‡ Field convertible to 3 phase.
** Includes blower motor amps of largest fan coil used with heater.
†† Copper wire must be used. If other than uncoated (non-plated), 75°C ambient, copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the National Electric Code (ANSI/NFPA 70).
‡‡ Length shown is as measured 1 way along wire path between unit and service panel for a voltage drop not to exceed 2%.
*** Heaters are Intelligent Heat capable when used with the FK, FV fan coils and corporate 2-speed programmable thermostat (TSTATCCP2S01-B), Thermidistat™ Control (TSTATCCPRH01-B), or Comfort Zone II.

NOTES: 1. For fan coil sizes 018, 030, and 036.
2. For fan coil sizes 042-060 and all FK4D, FV4B sizes.
3. Single circuit application of F15 and F20 heaters requires single-point wiring kit accessory

Carrier®

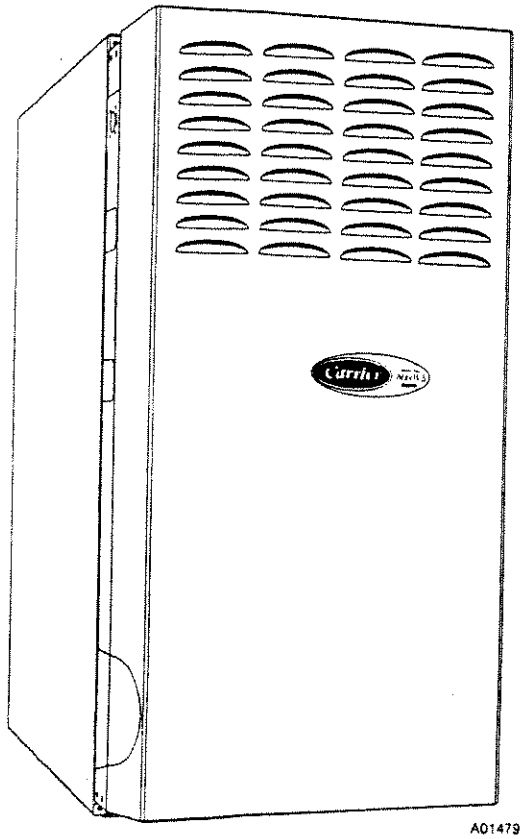
Product Data

58CVA/CVX
Variable Speed 4-Way Multipoise Furnace

Model: 58CVX110---1--20

ComfortHeat™ TECHNOLOGY

IdealHumidity™



A01479

DESIGN CERTIFIED

CERTIFIED

Carrier Corporation ISO 9001 #A2883 REGISTERED QUALITY SYSTEM

EFFICIENCY RATING CERTIFIED Gama

MEETS DOE RESIDENTIAL CONSERVATION SERVICES PROGRAM STANDARDS.

Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

THE WEATHERMAKER® 8000VS GAS FURNACE

The 58CVA/CVX Variable-Speed, 4-way Multipoise Gas Furnaces offer unmatched comfort with ComfortHeat™ Technology and IdealHumidity™ in an 80% AFUE gas furnace. You get all the benefits of a ComfortHeat Technology furnace: reduced drafts, reduced sound levels, longer cycles, less temperature swings between cycles, and less temperature differences between rooms. With the variable speed blower motor, homeowners can now economically run constant fan to help eliminate temperature differences throughout the house and to get better indoor air quality. This IdealHumidity furnace also increases comfort in the summer by wringing out extra humidity when needed. The WeatherMaker 8000VS furnaces are approved for use with natural or propane gas, and the 58CVX is also approved for use in Low NOx Air Quality Management Districts.

STANDARD FEATURES

- **ComfortHeat Technology**
  Intelligent microprocessor control
  Two-stage heating with single-stage thermostat
  Very low operating sound through low-stage operation and **QuieTech™** noise reduction system
- **Integral part of the IdealHumidity System**
  Maximum dehumidification selection for summer time cooling
  Full IdealHumidity benefits including "Super Dehumidify"
  Variable-speed blower motor
  Super-low electrical use, up to 80 percent less than standard models
  Increased SEER ratings for AC and HP systems
  Perfectly matches CFM to cooling system at all static points
- **Media Filter Cabinet Included**
- **Microprocessor based "smart" control center**
  Automatically adjusts heating stage times to meet demand
  Capable of controlling 2-speed outdoor unit staging
  Adjustable heating air temperature rise
- **Comfort Fan™** -Constant fan speed selectable from thermostat
  Up to 12 cooling airflow selections with a wide range of capability
  LED diagnostics and self test feature
  Stores fault codes during power outages
  Optional laptop and handheld PDA diagnostic software
- **4-way Multipoise furnace, 13 vent applications**
- **Shorter in height - only 33-1/3 tall**
- **Hot surface ignition (HSI)**
- **Draft safeguard switch to ensure proper furnace venting**
- **Insulated blower compartment**
- **Heat pump compatible**
- **All models are Chimney Friendly when used with accessory vent kit**
- **Residential installations eligible for consumer financing through the Retail Credit Program**

LIMITED WARRANTY

20-year warranty on "Super S™" heat exchanger
5-year parts warranty on all other components

Physical Data

UNIT SIZE			070-12	090-16	110-20	135-22	155-22
OUTPUT CAPACITY BTUH* (Nonweatherized ICS) †	all 58CVA; 58CVX Upflow	High	54,000	71,000	89,000	107,000	125,000
		Low	35,000	47,000	59,000	70,000	82,000
	58CVX Downflow/ Horizontal	High	51,000	68,000	85,000	102,000	119,000
		Low	35,000	47,000	59,000	70,000	82,000
INPUT BTUH*	all 58CVA; 58CVX Upflow	High	66,000	88,000	110,000	132,000	154,000
		Low	43,500	58,000	72,500	87,000	101,500
	58CVX Downflow/ Horizontal	High	63,000	84,000	105,000	126,000	147,000
		Low	43,500	58,000	72,500	87,000	101,500
SHIPPING WEIGHT (lb)			127	151	162	177	183
CERTIFIED TEMP RISE RANGE (°F)		High	30-60	40-70	40-70	40-70	45-75
		Low	30-60	30-60	25-55	25-55	30-60
CERTIFIED EXT STATIC PRESSURE	Heating		0.12	0.15	0.20	0.20	0.20
	Cooling		0.5	0.5	0.5	0.5	0.5
AIRFLOW CFM‡	Heating-High/Low		1180/735	1210/985	1475/1320	1915/1700	1970/1715
	Cooling		1225	1400	2095	2100	2095
AFUE%*	Nonweatherized ICS		80.0	80.0	80.0	80.0	80.0
LIMIT CONTROL			SPST				
HEATING BLOWER CONTROL			Solid-State Time Operation				
BURNERS (Monoport)			3	4	5	6	7
GAS CONNECTION SIZE			1/2-in. NPT				
GAS VALVE (Redundant) Manufacturer			White-Rodgers				
Minimum Inlet Pressure (in. wc)			4.5 (Natural Gas)				
Maximum Inlet Pressure (in. wc)			13.6 (Natural Gas)				
IGNITION DEVICE			Hot Surface				

* Gas input ratings are certified for elevations to 2000 ft. For elevations above 2000 ft, reduce ratings 4 percent for each 1000 ft above sea level. Refer to National Fuel Gas Code Table F4 or furnace installation instructions. In Canada, derate the unit 10 percent for elevations 2000 to 4500 ft above sea level.

† Capacity in accordance with U.S. Government DOE test procedures.

‡ Airflow shown is for bottom only return-air supply in comfort mode (as-shipped). For air delivery above 1800 CFM, see Air Delivery Table for other options. A filter is required for each return-air supply.

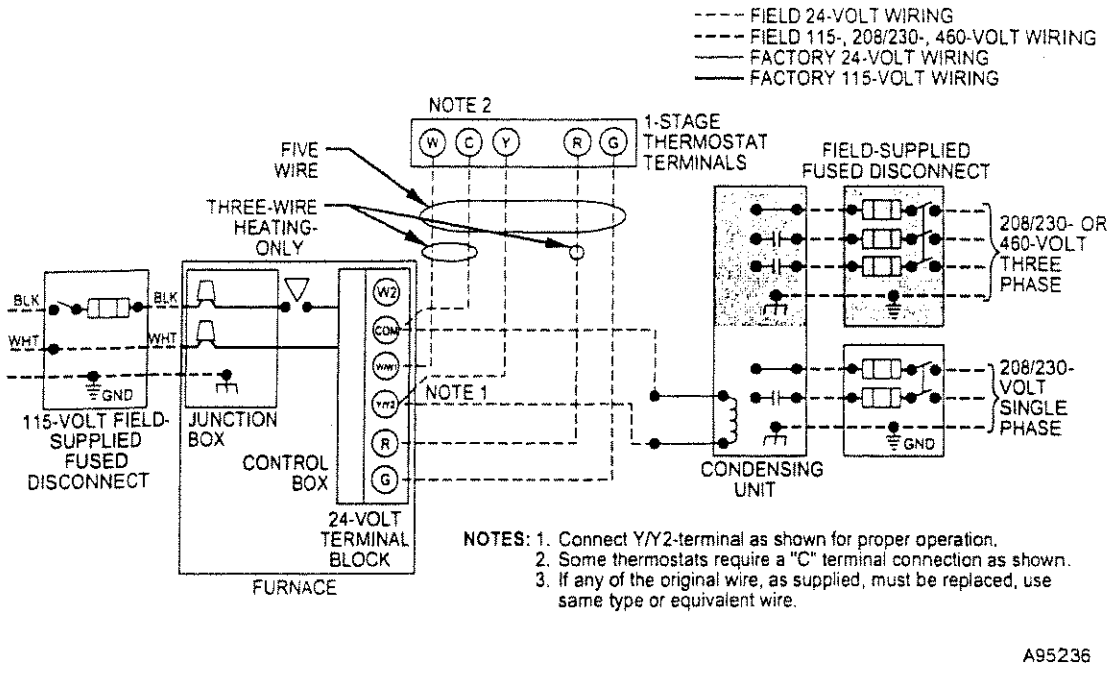
ICS - Isolated Combustion System

Blower Performance Data

UNIT SIZE	070-12	090-16	110-20	135-22	155-22
DIRECT-DRIVE MOTOR Hp (ECM)	1/2	1/2	1	1	1
MOTOR FULL LOAD AMPS	7.7	7.7	12.8	12.8	12.8
RPM (Nominal)	300-1300	300-1300	300-1300	300-1300	300-1300
BLOWER WHEEL DIAMETER WIDTHS (in.)	10 x 6	10 x 8	11 x 10	11 x 11	11 x 11

ECM Electronically Commutated Motor, Variable Speed

Typical Wiring Schematic



Electrical Data

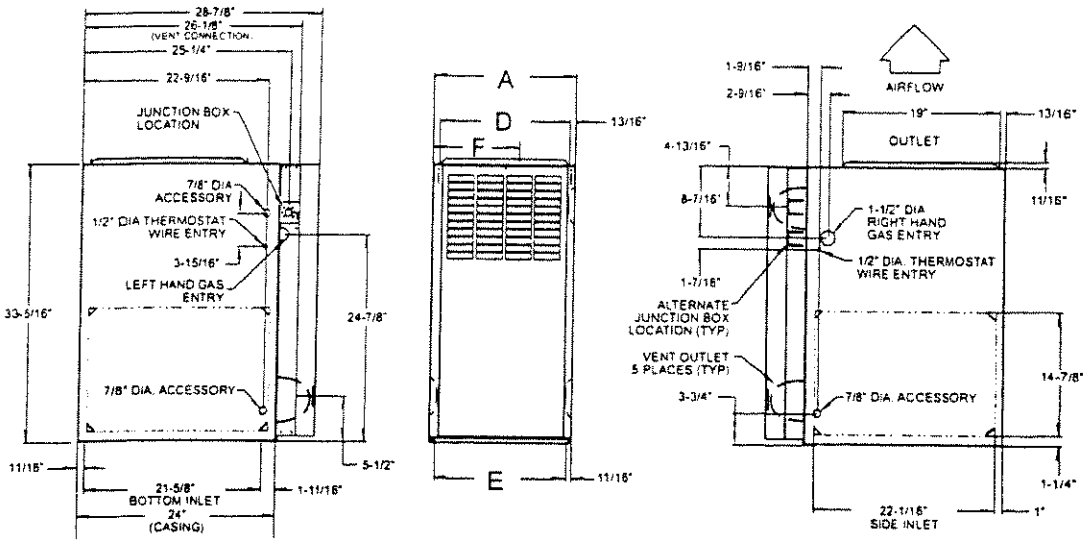
UNIT SIZE	VOLTS HERTZ-PHASE	OPERATING VOLTAGE RANGE		MAXIMUM UNIT AMPS	MAXIMUM WIRE LENGTH (FT)‡	MAXIMUM FUSE OR CKT BKR AMPS†	MINIMUM WIRE GAGE
		Maximum*	Minimum*				
070-12	115-60-1	127	104	9.0	30	15	14
090-14	115-60-1	127	104	9.6	29	15	14
110-20	115-60-1	127	104	15.1	29	20	12
135-22	115-60-1	127	104	14.9	30	20	12
155-20	115-60-1	127	104	15.0	29	20	12

* Permissible limits of the voltage range at which unit operates satisfactorily.

† Time-delay type is recommended.

‡ Length shown is as measured 1 way along wire path between unit and service panel for maximum 2 percent voltage drop.

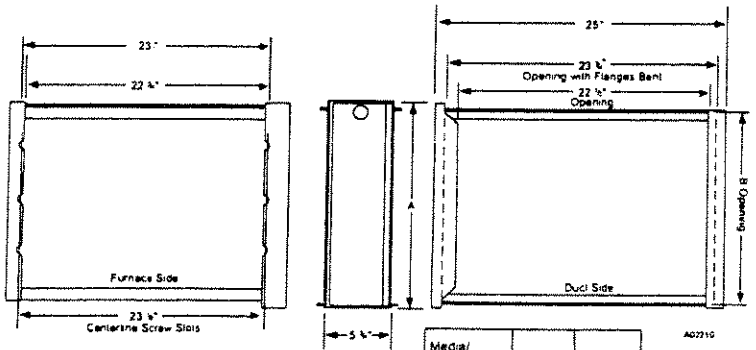
Dimensions



NOTES:
1. Two additional 7/8-in. dia. knockouts are located in the top plate.
2. Minimum return-air openings at furnace, based on metal duct. If flex duct is used, see flex duct manufacturer's recommendations for equivalent diameters.
3. Minimum return-air opening at furnace.
   a. For 800 CFM-16-in. round or 14-1/2 x 12-in. rectangle.
   b. For 1200 CFM-20-in. round or 14-1/2 x 19-1/3 in. rectangle.
   c. For 1600 CFM-22-in. round or 14-1/2 x 22-1/16-in. rectangle.
   d. For airflow requirements above 1800 CFM, see Air Delivery table in Product Data literature for specific use of single side inlets. The use of both side inlets, a combination of 1 side and the bottom, or the bottom of single side inlets. The use of both side inlets, a combination of 1 side and the bottom, or the bottom only will ensure adequate return air openings for airflow requirements above 1800 CFM.

58CVA/CVX UNIT SIZE	A (CABINET WIDTH)	D (SUPPLY WIDTH)	E (BOTTOM RETURN WIDTH)	F (C.L. TOP & BOTTOM VENT OUTLET)	VENT CONNECTION SIZE (see notes 1 & 2)	MEDIA CABINET SIZE
070-12	14-3/16	12-9/16	12-11/16	9-5/16	4	16
090-16	17-1/2	15-7/8	16-1/8	11-9/16	4	16
110-20	21	19-3/8	19-1/2	13-5/16	4	20
135-22	24-1/2	22-7/8	23	15-1/16	4 (note 1)	24
155-22	24-1/2	22-7/8	23	15-1/16	4 (note 1)	24

1) 135 and 155 size furnaces require five-inch vents. Use a 4-5 inch vent adapter between furnace and vent stack.
2) See Installation Instructions for complete installation requirements.



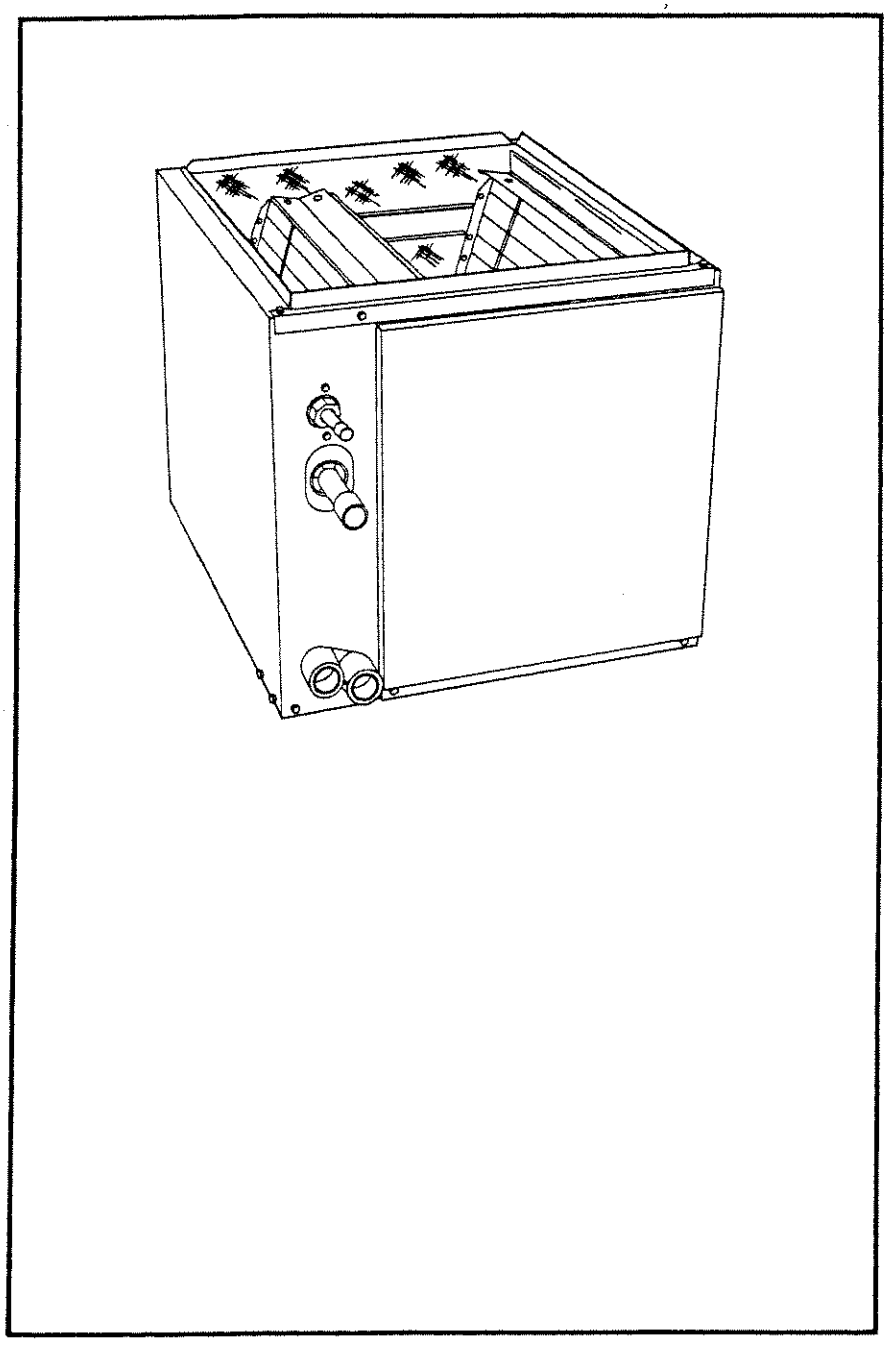
Media/ Filter Cabinet	A	B
16"	17"	16"
20"	21"	20"
24"	25"	24"

Carrier®
HEATING & COOLING

Product Data

CK5A, CK5B, CK5P Furnace N-Coils

Sizes A018 thru A060



This vertical design N-coil is a furnace coil designed to provide the highest standards of reliability and durability. The coils are offered in 3 configurations. The CK5A has a painted case and comes with a piston. The CK5B has an embossed case and comes with a piston. Both the CK5A and CK5B can be used with R-22 or Puron® systems. The third coil, the CK5P, is in a painted case and comes with a Puron TXV and is specific to Puron systems. The coils are offered in standard, overhang, and wide configurations for use in multiple installation applications. Additionally, the cased coils are offered in a Transition configuration, which is designed to fit two different furnace widths without field modification.

Easy maintenance is provided as the coil slides out of the cabinet after removing the access door and service panel.

The coils are available in sizes 018 through 060 (1-1/2 to 5 tons).

Two full lines of Tin-Plated copper coil models are available (CK5A and CK5P). "T" models are built with special hairpins—Tin-Plated to resist both general pitting corrosion and excessive indoor corrosion—Formicary Corrosion. (Formicary Corrosion is an industry phenomenon).

COMMON FEATURES

Water Management—The CK coil design does an excellent job of water management. The coils are designed to avoid water blow-off

into the ducts by directing condensate away from the fins and into the drain pan.

The coil's drain pan design provides improved condensate removal into the drain. This improves indoor air quality.

Durable Condensate Pan—Each coil is equipped with a corrosion resistant condensate drain pan. The condensate drain pan is designed with a slope to help ensure proper drainage, improved moisture removal, and home comfort.

Compact Design—Unique design offers as much as 2 in. less in height to aid in tight installations.

Brass Inserts— Every condensate pan features two 3/4 in. female threaded brass insert connections. The unique brass inserts provide for a leak-free condensate line connection to prevent water damage.

Refrigerant Connections—The coils are provided with proven sweat-connections for leak-free operation maintaining system reliability.

Burst Pressures—These coils meet or exceed burst pressure of 2100 psi which is at least three to five times the pressure they will see in actual application.

External Piston Location—Provides easy access to the piston metering device, for quick installations and standard service procedures.

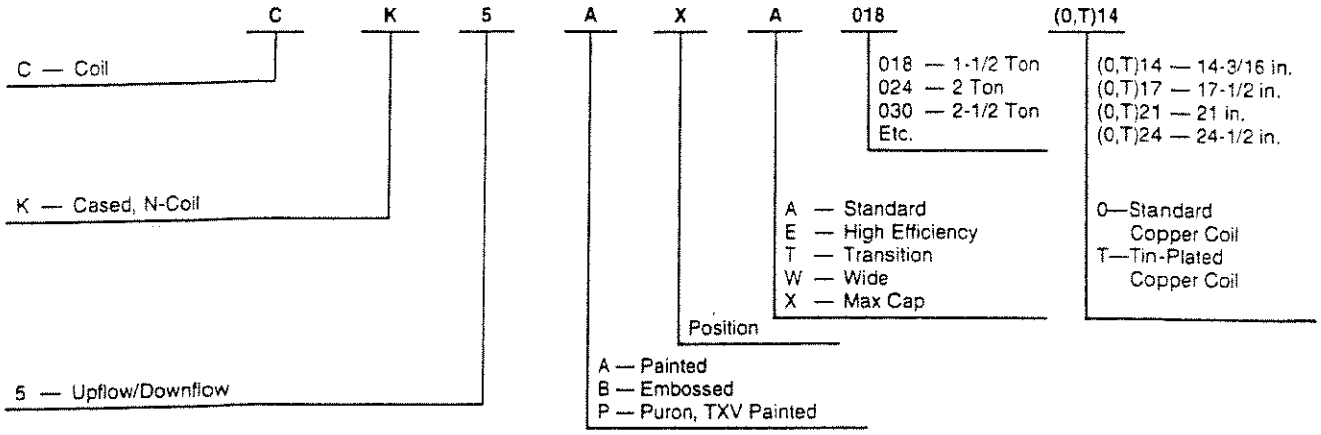
Liquid Line Bracket—Holds the piston body in place for quick, safe piston access without needing a back-up wrench.

Teflon Ring—The ring, installed inside the liquid line connection, is the best option for preventing refrigerant leaks and future service calls. Teflon works with both Puron® and R-22 Refrigerant.

Protective Tube Sheets—Protect the durable copper tubing from being damaged during the manufacturing and installation process.

Warranty—All CK5A/CK5B/CK5P coils feature a 5-year limited warranty on parts, with additional extended warranties available for the system.

Model number nomenclature



TÜV | ISO 9001

ISO 9001 Cert. 12 100 7854 TMS

REGISTERED QUALITY SYSTEM

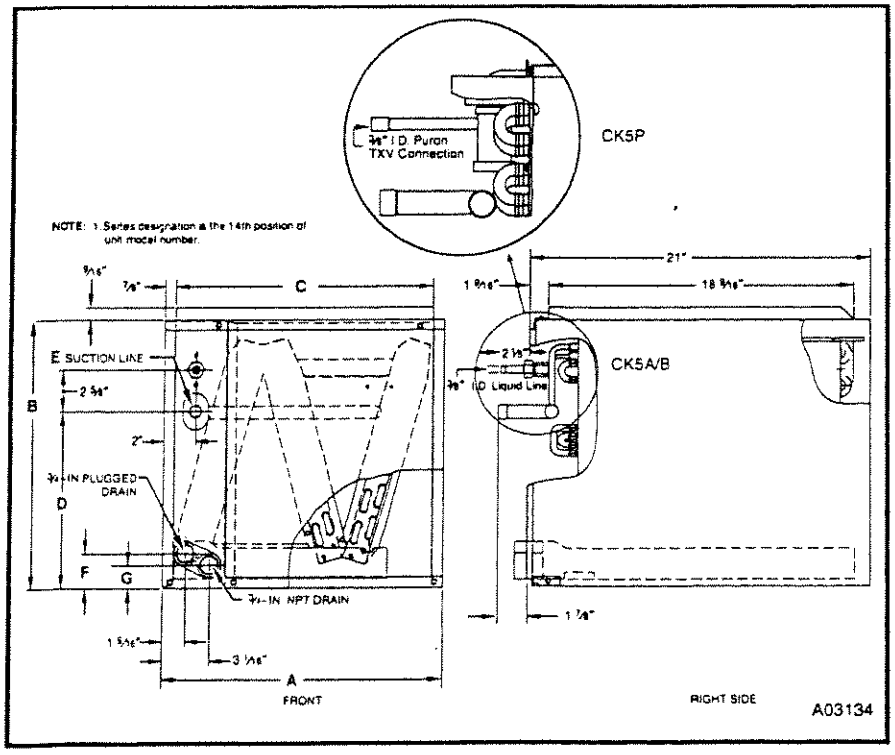
c UL US

CERTIFICATION APPLIES ONLY WHEN USED WITH PROPER COMPONENTS AS LISTED WITH ARI

DIMENSIONS (In.)

UNIT	SERIES	A	B	C	D	E	F	G	SHIPPING WEIGHT (LB)
CK5(A,P)XA018(0,T)14* CK5BXA018014*	A	14-3/16	12-5/8	12-7/16	5	5/8	2-1/8	1-3/8	29-1/2
CK5(A,P)XA024(0,T)14* CK5BXA024014*	A	14-3/16	12-5/8	12-7/16	7-1/16	5/8	2-1/8	1-3/8	33
CK5(A,P)XW024(0,T)17 CK5BXW024017*	A	17-1/2	12-5/8	15-3/4	6-11/16	5/8	2-1/8	1-3/8	34
CK5(A,P)XA030(0,T)14* CK5BXA030014*	A	14-3/16	14-5/8	12-7/16	9-1/16	3/4	2-1/8	1-3/8	36-1/2
CK5(A,P)XW030(0,T)17 CK5BXW030017	A	17-1/2	14-5/8	15-3/4	8-13/16	3/4	2-1/8	1-3/8	38-1/2
CK5(A,P)XA036(0,T)17* CK5BXA036017*	B	17-1/2	17.0	15-3/4	10-13/16	3/4	2-1/8	1-3/8	44
CK5(A,P)XT036(0,T)17* CK5BXT036017*	A	17-1/2	19-1/4	15-3/4	13-1/16	3/4	4-3/8	3-5/8	50
CK5(A,P)XW036(0,T)21 CK5BXW036021	B	21	17	19-1/4	10-1/2	3/4	2-1/8	1-3/8	45
CK5(A,P)XA042(0,T)21* CK5BXA042021*	B	21	17	19-1/4	10-1/2	7/8	2-1/8	1-3/8	45
CK5(A,P)XT042(0,T)21* CK5BXT042021*	A	21	19-1/4	19-1/4	12-3/4	7/8	4-3/8	3-5/8	53
CK5(A,P)XA048(0,T)21* CK5BXA048021*	B	21	19	19-1/4	12-11/16	7/8	2-1/8	1-3/8	48-1/2
CK5(A,P)XE042(0,T)17 CK5BXE042017	B	17-1/2	19	15-3/4	12-15/16	7/8	2-1/8	1-3/8	46-1/2
CK5(A,P)XT048(0,T)21* CK5BXT048021*	A	21	21-1/4	19-1/4	14-15/16	7/8	4-3/8	3-5/8	57
CK5(A,P)XW048(0,T)24 CK5BXW048024	B	24-1/2	19	22-3/4	12-3/16	7/8	2-1/8	1-3/8	50-1/2
CK5(A,P)XA060(0,T)24* CK5BXA060024*	A	24-1/2	22-1/16	22-3/4	16-1/2	7/8	2-1/8	1-3/8	63
CK5(A,P)XT060(0,T)24* CK5BXT060024*	A	24-1/2	24-5/16	22-3/4	18-3/4	7/8	4-3/8	3-5/8	70
CK5(A,P)XX060(0,T)24 CK5BXX060024	A	24-1/2	26-5/16	22-3/4	14-1/4	7/8	2-1/8	1-3/8	72

* In these models the coil can be removed from the casing and installed as an uncased coil without needing to field fabricate the coil enclosure to prevent air bypass.
NOTE: For the 10th digit position in the model number, 0 = standard copper and T = tin-plated copper.



Performance data continued

GROSS COOLING CAPACITIES (MBH)

UNIT SIZE	INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR (°F)														
			30			35			40			45			50		
	CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
A060 T060	1600	72	101.0	46.7	0.00	90.8	42.2	0.00	80.4	37.6	0.12	69.1	33.0	0.08	56.0	28.0	0.07
		67	83.8	49.9	0.07	73.5	45.2	0.07	63.1	40.5	0.06	51.1	35.3	0.06	38.0	29.8	0.06
		62	68.7	53.0	0.07	58.2	48.0	0.07	47.7	43.0	0.07	38.2	37.6	0.11	31.6	31.6	0.24
	2000	72	113.0	52.2	0.00	102.0	47.4	0.00	90.4	42.6	0.14	77.5	37.5	0.11	63.5	32.3	0.10
		67	94.0	56.8	0.10	82.6	51.8	0.10	71.2	46.8	0.09	58.5	41.3	0.10	43.7	35.2	0.11
		62	77.0	61.2	0.09	66.0	56.0	0.10	55.1	50.7	0.10	45.0	44.7	0.15	37.3	37.3	0.28
	2400	72	123.0	56.6	0.26	111.0	51.6	0.21	98.4	46.7	0.16	84.2	41.2	0.13	69.4	35.8	0.13
		67	103.0	62.8	0.13	89.9	57.4	0.13	77.3	52.0	0.12	64.3	46.5	0.12	48.3	40.0	0.14
		62	83.0	68.4	0.11	72.2	63.0	0.12	61.4	57.5	0.13	51.1	51.1	0.18	42.5	42.5	0.32
X060	1600	72	106.0	49.0	0.00	94.4	44.0	0.00	83.1	39.0	0.07	71.6	34.3	0.05	58.4	29.1	0.06
		67	85.7	51.3	0.05	75.4	46.5	0.05	65.1	41.7	0.05	52.9	36.4	0.05	39.8	30.9	0.07
		62	70.8	54.8	0.04	59.6	49.2	0.05	48.4	43.7	0.06	38.0	37.2	0.13	31.1	31.1	0.26
	2000	72	116.0	53.7	0.18	105.0	49.2	0.14	94.7	44.7	0.10	81.6	39.5	0.08	67.3	34.0	0.08
		67	97.6	59.1	0.07	86.1	54.0	0.07	74.5	48.8	0.07	61.4	43.1	0.07	46.4	36.9	0.09
		62	80.0	64.0	0.05	68.4	58.1	0.07	56.8	52.1	0.09	45.0	44.7	0.16	37.4	37.4	0.29
	2400	72	128.0	59.4	0.17	116.0	54.4	0.15	104.0	49.4	0.12	89.9	43.9	0.10	74.1	38.0	0.10
		67	108.0	66.0	0.09	94.7	60.4	0.09	81.8	54.7	0.10	67.9	48.8	0.10	51.9	42.3	0.11
		62	86.4	71.3	0.08	75.0	65.4	0.10	63.6	59.5	0.12	52.1	52.1	0.17	43.3	43.3	0.31

CFM — Cubic Ft per Minute
EWB — Entering Wet Bulb (°F)
LWB — Leaving Wet Bulb (°F)
TC — Gross Cooling Capacity 1000 Btuh
SHC — Gross Sensible Capacity 1000 Btuh
BF — Bypass Factor
MBH —1000 Btuh

NOTES:
1. Contact manufacturer for cooling capacities at conditions other than shown in table.
2. Formulas:

Leaving db = entering db — $\frac{\text{sensible heat cap.}}{1.09 \times \text{CFM}}$

Leaving wb = wb corresponding to enthalpy of air leaving coil (h_{LWB})

$h_{LWB} = h_{EWB} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{CFM}}$

where h_{EWB} = enthalpy of air entering coil.

3. Direct interpolation is permissible. Do not extrapolate.
4. SHC is based on 80°F db temperature of air entering coil. Below 80°F db, subtract (Correction Factor x CFM) from SHC. Above 80°F db, add (Correction Factor x CFM) to SHC.
5. All data points are based on 10°F superheat leaving coil.
6. Bypass Factor = 0 indicates no psychometric solution. Use bypass factor of next lower EWB for approximation.

BYPASS FACTOR	ENTERING AIR DRY BULB TEMPERATURE (°F)					
	79	78	77	76	75	UNDER 75
	81	*82*	*83*	*84*	*84*	*Over 85*
	Correction Factor					
0.10	0.98	1.96	2.94	3.92	4.91	Use formula shown below
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

Interpolation is permissible.
Correction Factor = 1.09 x (1 – BF) x (db – 80)

INDOOR COIL TXV

UNIT	FACTORY-INSTALLED INDOOR TXV SIZE
CK5P-018, 024, 030	EA36Y124
CK5P-036, 042	EA36Y134
CK5P-048	EA36Y144
CK5P-060	EA36Y154

COIL STATIC PRESSURE DROP (In. WC)

UNIT SIZE	BULB	AIR QUANTITY (CFM)					
A018		400	500	600	700	800	—
	WET	0.08	0.12	0.16	0.22	0.29	—
	DRY	0.07	0.11	0.15	0.20	0.27	—
A024		600	700	800	900	—	—
	WET	0.16	0.21	0.26	0.31	—	—
	DRY	0.14	0.19	0.24	0.29	—	—
W024		600	700	800	900	—	—
	WET	0.15	0.20	0.24	0.30	—	—
	DRY	0.13	0.18	0.23	0.29	—	—
A030		700	800	900	1000	1100	—
	WET	0.17	0.22	0.28	0.33	0.41	—
	DRY	0.16	0.21	0.27	0.32	0.40	—
W030		700	800	900	1000	1100	—
	WET	0.13	0.16	0.20	0.24	0.27	—
	DRY	0.10	0.14	0.17	0.20	0.24	—
A036 T036		900	1000	1100	1200	1300	—
	WET	0.18	0.22	0.26	0.30	0.35	—
	DRY	0.15	0.18	0.22	0.26	0.30	—
W036		900	1000	1100	1200	1300	—
	WET	0.15	0.18	0.21	0.25	0.28	—
	DRY	0.12	0.14	0.16	0.19	0.23	—
A042 T042		1000	1100	1200	1300	1400	—
	WET	0.18	0.21	0.25	0.28	0.32	—
	DRY	0.14	0.16	0.19	0.23	0.24	—
A048 T048		1300	1400	1500	1600	—	—
	WET	0.21	0.24	0.28	0.31	—	—
	DRY	0.19	0.22	0.25	0.28	—	—
W048		1300	1400	1500	1600	1700	—
	WET	0.16	0.17	0.19	0.21	0.23	—
	DRY	0.14	0.16	0.18	0.20	0.22	—
E042		1200	1300	1400	1500	—	—
	WET	0.25	0.30	0.34	0.40	—	—
	DRY	0.23	0.27	0.31	0.35	—	—
A060 T060		1600	1700	1800	1900	2000	2100
	WET	0.19	0.21	0.23	0.26	0.29	0.33
	DRY	0.17	0.19	0.21	0.23	0.25	0.28
X060		1600	1700	1800	1900	2000	2100
	WET	0.21	0.23	0.25	0.27	0.29	0.31
	DRY	0.16	0.18	0.20	0.22	0.25	0.27

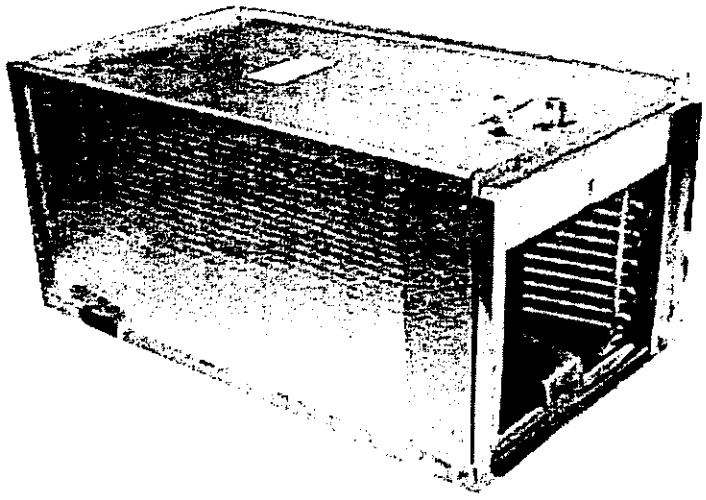
INDOOR COIL PISTONS

UNIT	FACTORY-INSTALLED INDOOR PISTON SIZE
CK5A/CK5BA018	52
CK5A/CK5BA024, W024	59
CK5A/CK5BA030, W030	67
CK5A/CK5BA036, W036, T036	70
CK5A/CK5BA042, T042, E042	78
CK5A/CK5BA048, T048, W048	84
CK5A/CK5BA060, T060, X060	90

ASLT / ASLB /ASLL / ASFM /ASFL/ ASKM /ASKL

Horizontal "*All In One Plenum Coil* "

General Specifications
3/4" MPT Drains (Primary & Secondary)
3/8" Liquid Refrigerant Tube
Suction Refrigerant Tube
1.5 to 3 Tons 3/4"
3.5 to 5 Tons 7/8"



Standard Features

Piston access from top panel
Right or left hand installation
Cap flowrator metering device
Non metallic seamless drain pan
Five year limited factory warranty
Duct board sides for collar installation
Adjustable openings to fit most furnaces
Rifled copper tubes / enhanced aluminum fins
Fully insulated embossed galvanized steel cabinet

Patented Design Eliminates Transition And Plenum Refrigerate Connections On Top For Left Or Right Install

Optional Accessories

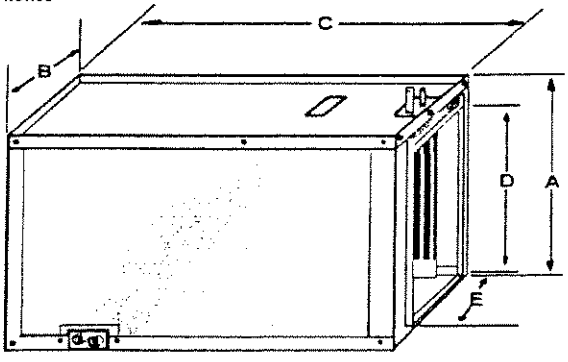
Fully insulated metal sides
Auxiliary secondary drain pan
Factory or field installed expansion valve

U.S. Patent # 5,062,280

Cabinet Specifications

Model / Series	Height A	Width B	Length C	Opening D	Opening E
ASLT	18.25"	20.25"	24.00"	17.00" To 18.00"	16.00" To 20.25"
ASLB	18.25"	20.25"	34.375"	17.00" To 18.00"	16.00" To 20.25"
ASLL	18.25"	20.25"	40.375"	17.00" To 18.00"	16.00" To 20.25"
ASFM	22.25"	20.25"	34.375"	20.00" To 21.00"	16.00" To 20.25"
ASFL	22.25"	20.25"	40.375"	20.00" To 21.00"	16.00" To 20.25"
ASKM	26.25"	20.25"	34.375"	22.00" To 23.00"	16.00" To 20.25"
ASKL	26.25"	20.25"	40.375"	22.00" To 23.00"	16.00" To 20.25"

Specifications subject to change without notice



Conforms UL STD 207

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7/20/01

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Job Name: Trinity Church Location: San Diego,CA

Purchaser: University Mechanical

Engineer:

Submitted To: Ron Fisher For: ☐ Reference ☐ Approval ☐ Construction

Submitted By: Jeffrey Hight Date:

Unit Designation: Schedule No. Model No.: PU36EK, PK36FK

Submittal Data: PK36FK3 & PU36EK

MITSUBISHI ELECTRIC

Capacities:

Cooling .....34.2 MBH

Outdoor Design Temp °F DB/WB
Cooling 95/75

EER 9.9
SEER 10.2

Indoor Unit:

Power Supply (V/PH/Hz) 115/1/60
Max. Fuse Size .....15 Amps
Min. Ampacity .....2 Amps
Weight .....62 Lbs.
Sound .....dB(A) L-41/H-46

Outdoor Unit:

Power Supply (V/PH/Hz) 208-230/1/60
Max. Fuse Size .....30 Amps
Min. Ampacity .....22 Amps
Weight .....220 Lbs.

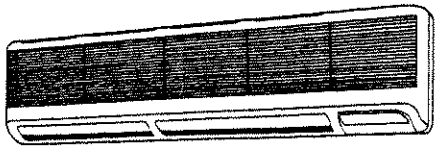
Refrigerant Piping:

Max. Ht. Difference .....164 Ft.
Max. Length .....164 Ft.
Liquid (OD) .....1/2 In.
Gas (OD) .....3/4 In.

Standard Features:

- Six year compressor warranty
- One year parts warranty
- Auto restart following a power outage
- Advanced Microprocessor controls
- Slim-line outdoor unit
- Refrigerant charge for up to 100 feet of piping
- Zone control
- Quiet operation - both, indoor and outdoor units
- On/Off timer
- Self Diagnostics
- Condenser fan control down to 0°F. *

*Requires low ambient wind baffle



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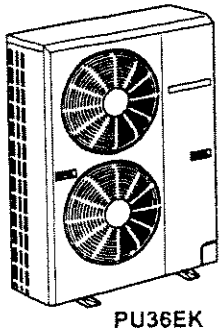
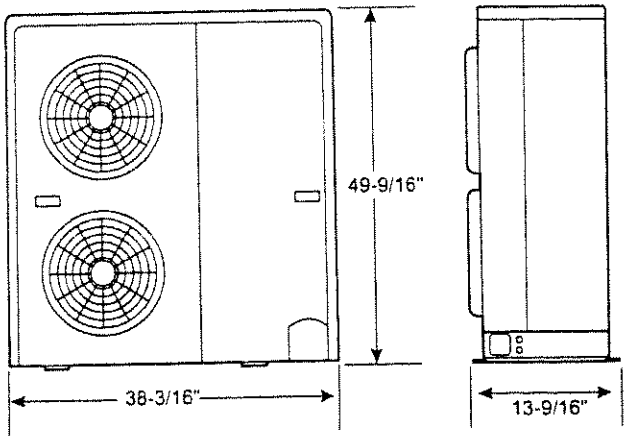
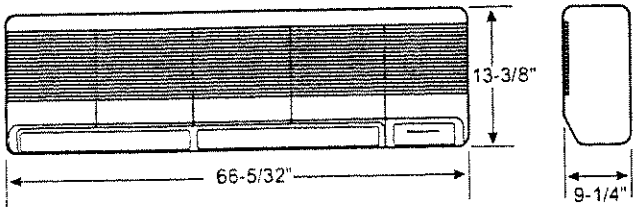


PU36EK

Dimensions – Inches



PU36EK



PK36FK3

Notes:

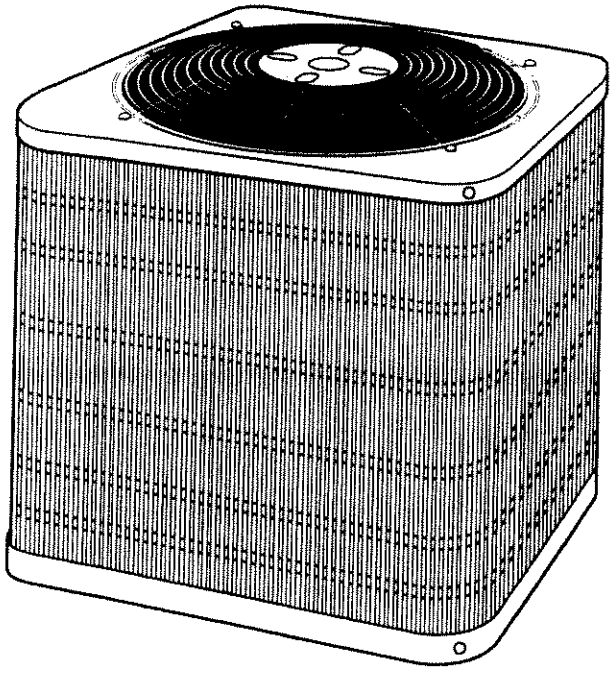
Existing Christian Education Building

Carrier®
HEATING & COOLING

Product Data

38EZG (60 Hz) 12 SEER Air Conditioner with Puron® Refrigerant

Sizes 018 thru 060



Puron®
the environmentally sound refrigerant

Model 38EZG Energy-Efficient Air Conditioner incorporates innovative technology to provide quiet, reliable cooling performance. Built into these units are the features most desired by homeowners today, including SEER ratings of up to 14.0 when used with specific Carrier indoor sections. The 38EZG family has been designed utilizing Carrier's Puron® refrigerant. This environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer. All models are listed with UL (U.S. and Canada), ARI, and CEC. The 38EZG meets the Energy Star® guidelines for energy efficiency.

FEATURES/BENEFITS

Electrical Range — All units are offered in single phase 208/230v. The 38EZG 030 through 060 models are offered in 208/230v 3 phase.

Wide Range of Sizes — Available in 7 nominal sizes from 018 through 060 to meet the needs of residential and light commercial applications.

Puron Environmentally Sound Refrigerant — Puron is Carrier's brand name for a refrigerant designed to help protect the environment. R-22, the most commonly used refrigerant in home cooling systems today, is scheduled for future phase-out by the government because it contains chlorine, which harms the earth's protective ozone layer. Puron is an HFC refrigerant that does not contain chlorine, which means it does not harm the ozone layer. Puron is now in service in thousands of systems providing highly reliable, environmentally sound performance.

For specific R-22 refrigerant phase-out information, see your Carrier distributor.

Compressor — The Puron® compressor is more efficient than conventional compressors. Its simple design offers improved reliability. Each compressor is mounted on rubber isolators for additional sound reduction. For improved serviceability, all models are equipped with a compressor terminal plug. Continuous operation is approved down to 55°F (12.8°C) in the cooling mode. (See cooling performance tables.) Operation down to 0°F or -20°F is approved when low-ambient requirements are met.

WeatherArmor™ Cabinet — The access panels and top are protected with a galvanized coating, then treated with a layer of zinc phosphate to which a modified polyester powder coating is applied and baked on. This provides each unit with a hard, smooth finish that will last for many years.

WeatherArmor Grille provides:
- Easy to clean-natural clean.
- Lower maintenance cost.
- Lower service cost.
- Higher unit lifetime efficiency than most competitors.

The WeatherArmor Grille stops damage from sticks and marble-size hail proving its reliability, quality and toughness.

All screws on cabinet exterior are coated for a long-lasting, rust-resistant, quality appearance.

Totally Enclosed Fan Motor — Means greater reliability under adverse weather conditions and dependable performance for many years. The permanent-split-capacitor type motor was designed for optimum efficiency. Then, under extreme conditions, the motor was tested and qualified to help ensure the greatest reliability.

Unit Design — Copper tube, enhanced sine wave aluminum fin coil is designed for optimum heat transfer. Vertical air discharge carries sound and hot condenser air up and away from adjacent patio areas and foliage. Heat pump style drain pan for easy removal of water, dirt, and leaves.

Application Versatility — The 38EZG can be combined with a wide variety of evaporator coils and blower packages to provide quiet, dependable comfort. Unit can be installed on a roof or at ground level.

External Service Valves — Both service valves are brass, front seating type with sweat connections. Valves are externally located so refrigerant tube connections can be made quickly and easily. Each valve has a service port for ease of checking operating refrigerant pressures.

Easy Serviceability — One access panel provides access to electrical controls and compressor. Removal of wire dome gives access to fan motor and removal of the top gives access to the coil.

Compressor Protection — All compressors are protected by internal temperature and current sensitive overloads. An internal pressure relief is provided for high-pressure protection. Long term reliability is assured through the use of both high and low pressure switches. Also included is a liquid line filter drier designed to trap moisture and contaminants which could otherwise shorten the life of the system.

3-Phase Monitor Board — Control board that monitors the electrical phase and prevents compressor operation if wired incorrectly.

Limited Warranty — Standard 5-year limited warranty on all parts and 5-year limited warranty on the compressor.

CERTIFICATION APPLIES ONLY WHEN THE COMPLETE SYSTEM IS LISTED WITH ARI.

ENERGY STAR

★ As an ENERGY STAR® Partner, Carrier Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency

Carrier Corporation — UL REGISTERED FIRM ISO 9001 #A2934

CERTIFICATE NO. FM 28768

APPROVALS
ISO 9001
EN 29001
BS 5750 PART 1
ANSI/ASQC Q91

REGISTERED QUALITY SYSTEM

c UL US

*Refer to the combination ratings in the Product Data Digest for system combinations that meet Energy Star® efficiency standards.

Model number nomenclature

38EZG 018 3 0 1

Standard 12 SEER Split-System Air Conditioner

Nominal Capacity
018 — 18,000 Btuh
024 — 24,000 Btuh
030 — 30,000 Btuh
036 — 36,000 Btuh
042 — 42,000 Btuh
048 — 48,000 Btuh
060 — 60,000 Btuh

Electrical
3 — 208/230-1
5 — 208/230-3

Series

Packaging

Physical data

UNIT SIZE–SERIES	018-30	024-30	030-30, 50	036-30, 50/31	042-30, 50	048-30, 50	060-30, 50/31, 51
OPERATING WEIGHT (Lb)	140	143	138	156	197	203	238
COMPRESSOR							
Type	Recip	Scroll		Scroll/Recip	Scroll		Scroll
REFRIGERANT	Puron® (R-410A)						
Control	TXV or AccuRater						
Charge (Lb) @ 15 Ft	4.75	5.00	5.50	5.75/6.25	6.38	7.13	9.75
CONDENSER FAN	Propeller Type, Direct Drive						
Air Discharge	Vertical						
Air Qty (CFM)	1700	1700	2000	2500/2400	2800	3000	3400
Motor HP	1/12	1/12	1/10	1/4/1/8	1/5	1/4	1/4
Motor RPM	1100	1100	1100	1100/825	825	1100	1100
CONDENSER COIL	Copper Tube, Aluminum Plate Fin						
Face Area (Sq ft)	9.94	11.59	10.77	12.42/14.8	14.8	14.8	22.2
Fins per In.	25	25	25	25	20	25	25
Rows	1	1	1	1	1	1	1
Circuits	2	2	2	2	2	2	3
VALVE CONNECT. (In. ID)	Sweat						
Vapor	5/8	5/8	3/4	3/4	7/8	7/8	7/8
Liquid	3/8						
REFRIG TUBES* (In. OD)							
Vapor (0–50 Ft Tube Length)	5/8	5/8	3/4	3/4	7/8	7/8	1-1/8
Vapor (Max Diameter for Long-Line Applications)	3/4	3/4	7/8	7/8	1-1/8	1-1/8	1-1/8
Liquid (0–50 Ft Tube Length)	3/8						
Liquid (For Long-Line Applications)	3/8						

* For tubing sets greater than 50 ft horizontal and/or 20 ft vertical differential, consult Residential Split System Long Line Application Guideline and Service Manual.

NOTE: See unit Installation Instructions for proper installation.

ACCURATER® PISTON CHART

UNIT SIZE-SERIES	PISTON* IDENTIFICATION NO.
018-30	52
024-30	61
030-30, 50	63
036-30, 50	70
036-31	67
042-30, 50	76
048-30, 50	76
060-30, 31, 50, 51	90

* Piston listed is for any approved non-capillary tube coil combination. Piston is shipped with outdoor unit and must be installed in an approved indoor coil.

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE*)

UNIT SIZE-SERIES	REQUIRED SUBCOOLING (°F)
018-30	10
024-30	10
030-30, 50	15
036-30, 50	12
036-31	15
042-30, 50	15
048-30, 50	15
060-31, 50, 51	15

*Must be a Puron® approved hard shutoff TXV.

Accessories

ORDERING NO.	DESCRIPTION
KAATD0101TDR	Time-Delay Relay — All Sizes
KSALA0301410	Low-Ambient Pressure Switch Kit — All Sizes
KSALA0401AAA*	MotorMaster®—Low-Ambient Controller — All Sizes
KAAFT0101AAA†	Evaporator Freeze Thermostat — All Sizes
KAAWS0101AAA†	Winter Start Control — All Sizes
KSACY0101AAA	Cycle Protector — All Sizes
KSAHS1801AAA	Start Assist — Capacitor and Relay — Size 018
KSAHS1901AAA	Start Assist — Capacitor and Relay — Size 036 (31)
KSAHS1501AAA	Start Assist — Capacitor and Relay — Sizes 024 (30), 030 (30), 036 (30), 042 (30), 048 (30)
KSAHS1601AAA	Start Assist — Capacitor and Relay — Size 060 (30, 31)
KAACS0201PTC	Start Assist — PTC — All Sizes (Single Phase)
KAACH1001AAA	Crankcase Heater — Sizes 018, 036 (31)
KAACH1201AAA	Crankcase Heater — Sizes 024, 30, 36 (30, 50), 42-60
KSATX0201PUR‡	Thermostatic Expansion Valve (Hard Shutoff) — Sizes 018–030
KSATX0301PUR‡	Thermostatic Expansion Valve (Hard Shutoff) — Sizes 036, 042
KSATX0401PUR‡	Thermostatic Expansion Valve (Hard Shutoff) — Size 048
KSATX0501PUR‡	Thermostatic Expansion Valve (Hard Shutoff) — Size 060
KSAPX0101PIS	Piston Body — All Sizes
HC34GE232 (RCD)	Ball Bearing Fan Motor — Sizes 018–030
HC40GE232 (RCD)	Ball Bearing Fan Motor — Size 036, 048, 060
HC38GE231 (RCD)	Ball Bearing Fan Motor — Size 042
KH45LG140 (RCD)	Filter Drier (Suction Line) — Sizes 018–036
KH45LG141 (RCD)	Filter Drier (Suction Line) — Sizes 042–060
KAALS0201LLS‡	Liquid-Line Solenoid Valve — Sizes 018–060
KAACF1001MED	Coastal Filter — Sizes 018–036 (30, 50)
KAACF1101LRG	Coastal Filter — Sizes 036 (31), 042–060
KSASH2001BRL	Sound Hood — Sizes 018, 036 (31)
KSASH1801COP	Sound Hood — Sizes 024, 030
KSASH0601COP	Sound Hood — Sizes 036 (30, 50), 042, 048
KSASH2101COP	Sound Hood — Size 060

* Fan motor with ball bearings required.
† See low-ambient controller installation instructions for application.
‡ Do not use hard shutoff TXV with Liquid-Line Solenoid Valve.

THERMOSTAT/SUBBASE PKG	DESCRIPTION
TSTATCCPRH01-B	Thermidistat™ Control — Non-Programmable/Programmable Thermostat with Humidity Control
TSTATCCPAC01-B	Thermostat — Auto Changeover, 7-Day Programmable, °F/°C, 1-Stage Heat, 1-Stage Cool
TSTATCCNAC01-B	Thermostat — Auto Changeover, Non-Programmable, °F/°C, 1-Stage Heat, 1-Stage Cool
TSTATCCSAC01	Thermostat, Manual Changeover, 5-2 Day Programmable, °F/°C, 1-Stage Heat/1-Stage Cool
TSTATCCBAC01-B	Builder's Thermostat — Manual Changeover, Non-Programmable, °F/°C, 1 Stage Heat, 1-Stage Cool
TSTATXXSEN01-B	Outdoor Air Temperature Sensor
TSTATXXNBP01	Backplate for Non-Programmable Thermostat
TSTATXXPBP01	Backplate for Programmable Thermostat
TSTATXXBBP01	Backplate for Builder's Thermostat
TSTATXXSBP01	Backplate for Standard Programmable Thermostat
TSTATXXCNV10	Thermostat Conversion Kit (4 to 5 wire) — 10 Pack

Accessory usage guideline

ACCESSORY	REQUIRED FOR LOW-AMBIENT APPLICATIONS (Below 55°F)	REQUIRED FOR LONG-LINE APPLICATIONS* (Over 50 Ft)	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 Miles)
Crankcase Heater	Yes	Yes	No
Evaporator Freeze Thermostat	Yes	No	No
Winter Start Control	Yes†	No	No
Accumulator	No	No	No
Compressor Start Assist Capacitor and Relay	Yes	Yes	No
MotorMaster®—Low-Ambient Controller or Low-Ambient Pressure Switch	Yes	No	No
Wind Baffle	See low-ambient instructions	No	No
Coastal Filter	No	No	Yes
Liquid-Line Solenoid Valve or Hard Shutoff TXV	No	See Long-Line Application Guideline	No
Ball Bearing Fan Motor	Yes‡	No	No

* For tubing line sets greater than 50 ft and/or 20 ft vertical differential, refer to Application Guideline and Service Manual—Air Conditioners and Heat Pumps Using Puron® Refrigerant.

† Only when low-pressure switch is used.

‡ Required for low ambient controller and MotorMaster® Control only.

Accessory description and usage (Listed alphabetically)

1. **Ball-Bearing Fan Motor**
   A fan motor with ball bearings which permits speed reduction while maintaining bearing lubrication.
   Usage Guideline:
   Required on all units when MotorMaster®—Low-Ambient Controller is installed.

2. **Coastal Filter**
   A mesh screen inserted under the top cover and inside the base pan to protect the condenser coil from salt damage without restricting airflow.

3. **Compressor Start Assist – Capacitor and Relay**
   Start capacitor and relay gives a "hard" boost to compressor motor at each start up.
   Usage Guideline:
   Required for reciprocating compressors in the following applications:
   Long line
   Low ambient
   Hard shut off expansion valve on indoor coil
   Liquid line solenoid on indoor coil
   Required for scroll compressors in the following applications:
   Long line
   Low ambient
   Suggested for all compressors in areas with a history of low voltage problems.

4. **Compressor Start Assist — PTC Type**
   Solid state electrical device which gives a "soft" boost to the reciprocating compressor at each start-up.
   Usage Guideline:
   Suggested in installations with marginal power supply.

5. **Crankcase Heater**
   An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.
   Usage Guideline:
   Required in low ambient applications.
   Required in long line applications.
   Suggested in all commercial applications.

6. **Evaporator Freeze Thermostat**
   An SPST temperature-actuated switch that stops unit operation when evaporator reaches freeze-up conditions.
   Usage Guideline:
   Required when low ambient kit has been added.

7. **Liquid-Line Solenoid Valve (LLS)**
   This device serves two purposes. It is an electrically operated shutoff valve which stops and starts refrigerant liquid flow in response to compressor operation. It maintains a column of refrigerant liquid ready for action at next compressor operation cycle. It also provides system protection against off-cycle refrigerant migration.
   Note: When LLS is used with reciprocating compressors, Compressor Start Assist — Capacitor and Relay is required.
   Usage Guideline:
   Required in air conditioner long line applications with a piston indoor metering device to prevent off cycle refrigerant migration. A hard shut off TXV can be used instead of an LLS in single flow air conditioner applications. See Long Line Application Guideline.

Accessory description and usage (continued)

8. **Low-Ambient Pressure Switch Kit**
   A long life pressure switch which is mounted to outdoor unit service valve. It is designed to cycle the outdoor fan motor in order to maintain head pressure within normal operating limits (approximately 100 psig to 225 psig). The control will maintain working head pressure at low-ambient temperatures down to 0°F when properly installed.
   Usage Guideline:
   A Low-Ambient Pressure Switch or MotorMaster®—Low-Ambient Controller must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

9. **MotorMaster®—Low-Ambient Controller**
   A fan-speed control device activated by a temperature sensor, designed to control condenser fan motor speed in response to the saturated, condensing temperature during operation in cooling mode only. For outdoor temperatures down to -20°F (-28.9°C), it maintains condensing temperature at 100°F ± 10°F (37.8°C ± -12°C).
   Usage Guideline:
   A MotorMaster®—Low Ambient Controller or Low-Ambient Pressure Switch must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).
   Suggested for all commercial applications.

10. **Outdoor Air Temperature Sensor**
    Designed for use with Carrier Thermostats listed in this publication. This device enables the thermostat to display the outdoor temperature. This device also is required to enable special thermostat features such as auxiliary heat lock out.
    Usage Guideline:
    Suggested for all Carrier thermostats listed in this publication.

11. **Sound Hood**
    Wraparound sound reducing cover for the compressor. Reduces the sound level by about 2 dBA.
    Usage Guideline:
    Suggested when unit is installed closer than 15 ft to quiet areas—bedrooms, etc.
    Suggested when unit is installed between two houses less than 10 ft apart.

12. **Thermostatic Expansion Valve (TXV)**
    A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator. Kit includes valve, adapter tubes, and external equalizer tube. Hard shut off types are available.
    Note: When using a hard shut off TXV with single phase reciprocating compressors, a Compressor Start Assist — Capacitor and Relay is required.
    Usage Guideline:
    Required to achieve ARI ratings in certain equipment combinations. Refer to combination ratings.
    Hard shut off TXV or LLS required in air conditioner long line applications.
    Required for use on all zoning systems.

13. **Time-Delay Relay**
    An SPST delay relay which briefly continues operation of indoor blower motor to provide additional cooling after the compressor cycles off.
    Note: Most indoor unit controls include this feature. For those that do not, use the guideline below.
    Usage Guideline:
    For improved efficiency ratings for certain combinations of indoor and outdoor units. Refer to ARI Unitary Directory.

Electrical data

UNIT SIZE--SERIES	V/PH	OPER VOLTS*		COMPRESSOR		FAN FLA	MCA	60°C MIN WIRE SIZE†	75°C MIN WIRE SIZE†	60°C MAX LENGTH (Ft)‡	75°C MAX LENGTH (Ft)‡	MAX FUSE** OR CKT BKR AMPS
		Max	Min	LRA	RLA							
018-30	208/230-1	253	187	48.0	8.7	0.5	11.3	14	14	70	69	20
024-30				61.0	13.5	0.5	17.4	14	14	45	43	25
030-30				72.5	14.7	0.8	19.2	14	14	41	39	30
036-30				83.0	15.4	1.4	20.7	12	12	60	57	30
036-31				93.0	16.7	0.8	21.7	12	12	57	54	30
042-30				105.0	18.6	1.1	24.4	10	10	81	77	40
048-30				109.0	20.5	1.4	27.0	10	10	74	70	40
060-30				158.0	27.6	1.4	35.9	8	8	86	82	60
060-31				145.0	30.0	1.4	39.0	8	8	78	74	60
030-50	208/230-3	253	187	63.0	10.4	0.8	13.8	14	14	65	62	20
036-50				77.0	12.2	1.4	16.7	14	14	54	51	25
042-50				88.0	13.7	1.1	18.2	14	14	49	47	25
048-50				91.0	14.7	1.4	19.8	12	12	73	69	30
060-50				137.0	18.1	1.4	24.0	10	10	96	91	40
060-51				120.0	17.6	1.4	23.4	10	10	96	91	40

* Permissible limits of the voltage range at which unit will operate satisfactorily. Operation outside these limits may result in unit failure.

† If wire is applied at ambient greater than 30°C (86°F), consult Table 310-16 of the NEC (ANSI/NFPA 70).
The ampacity of nonmetallic-sheathed cable (NM), trade name ROMEX, shall be that of 60°C (140°F) conductors, per the NEC (ANSI/NFPA 70) Article 336-26. If other than uncoated (non-plated), 60° or 75°C (140° or 167°F) insulation, copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (ANSI/NFPA 70).

‡ Length shown is as measured 1 way along wire path between the unit and service panel for a voltage drop not to exceed 2%.

** Time-delay fuse.

FLA — Full Load Amps
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
RLA — Rated Load Amps

NOTES:

1. Control circuit is 24v on all units and requires external power source.
2. Copper wire must be used from service disconnect to unit.
3. All motors/compressors contain internal overload protection.

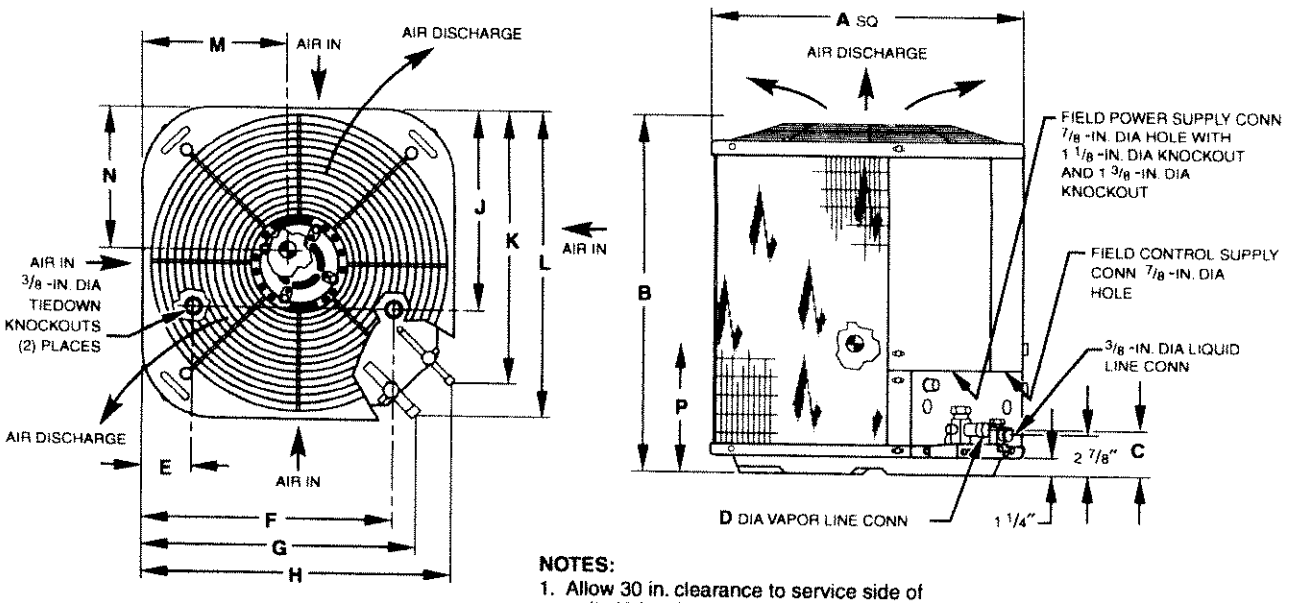
A-weighted sound power (dBA) (without sound blanket)

UNIT SIZE	STANDARD RATING	TYPICAL OCTAVE BAND SPECTRUM (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018	76	48.5	63.0	67.5	70.5	66.0	65.0	55.5
024	76	48.5	58.5	64.5	72.0	66.5	61.5	57.0
030	77	48.5	61.0	67.0	71.5	66.5	61.5	55.0
036-30, 50	79	57.5	63.0	68.0	74.5	70.5	65.0	58.5
036-31	80	50.0	68.0	72.0	73.5	67.5	64.5	57.0
042	79	53.5	67.0	68.0	71.5	71.0	63.5	59.5
048	80	55.0	68.0	71.0	73.0	70.5	67.0	61.5
060-30, 50	80	51.0	63.0	69.5	74.0	67.5	66.5	60.5
060-31, 51	80	53.0	61.0	66.0	71.5	70.5	64.5	57.5

Note: Tested in accordance with ARI Standard 270-95 (Not listed with ARI).

Sound level (dBA)

UNIT SIZE	W/ACCESSORY SOUND BLANKET
018	74
024	74
030	75
036-30, 50	76
036-31	76
042	77
048	78
060	78



NOTES:

1. Allow 30 in. clearance to service side of unit, 48 in. above unit, 6 in. on one side, 12 in. on remaining side, and 24 in. between units for proper airflow.
2. Minimum outdoor operating ambient in cooling mode is 55°F, max. 125°F.
3. Series designation is the 13th position of the unit model number.
4. Center of gravity ⊕.

A02358

DIMENSIONS (IN.)

UNIT SIZE	SERIES	A	B	C	D	E	F	G	H	J	K	L	M	N	P	MINIMUM MOUNTING PAD DIMENSIONS
018	30	22-1/2	27-15/16	3-3/16	5/8	3-11/16	18-1/8	19-3/4	22-1/4	14-3/8	19-9/16	22-1/16	10-1/4	9-1/2	11-1/2	22-1/2 x 22-1/2
024	30	22-1/2	31-15/16	3-3/16	5/8	3-11/16	18-1/8	19-3/4	22-1/4	14-3/8	19-9/16	22-1/16	10-1/4	9-1/2	11-5/8	22-1/2 x 22-1/2
030	30, 50	22-1/2	29-15/16	3-3/16	3/4	3-11/16	18-1/8	19-3/4	22-1/4	14-3/8	19-9/16	22-1/16	10-1/4	9-1/2	11-1/2	22-1/2 x 22-1/2
036	30, 50	22-1/2	33-15/16	3-3/16	3/4	3-11/16	18-1/8	19-3/4	22-1/4	14-3/8	19-9/16	22-1/16	10-1/4	9-1/2	15-1/2	22-1/2 x 22-1/2
036	31	30	27-15/16	3-1/4	3/4	6-1/2	23-1/2	27-1/4	29-3/4	20	27-1/16	29-9/16	15	13	14-1/2	30 x 30
042	30, 50	30	27-15/16	3-1/4	7/8	6-1/2	23-1/2	27-1/4	29-3/4	20	27-1/16	29-9/16	15	13	14-1/2	30 x 30
048	30, 50	30	27-15/16	3-1/4	7/8	6-1/2	23-1/2	27-1/4	29-3/4	20	27-1/16	29-9/16	15	13	14-1/2	30 x 30
060	30, 31, 50, 51	30	39-15/16	3-1/4	7/8	6-1/2	23-1/2	27-1/4	29-3/4	20	27-1/16	29-9/16	15-1/2	14-3/4	14-1/2	30 x 30

Combination ratings

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCEMENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
018-30	*CK5A/CK5BA024	17,200	NONE	—	12.00	12.00	10.50
	CC5A/CD5AA018	17,000	NONE	—	11.50	11.50	10.00
	CC5A/CD5AA024	17,200	NONE	—	12.00	12.00	10.00
	CC5A/CD5AW024	17,200	NONE	—	12.00	12.00	10.35
	CE3AA024	17,200	NONE	—	12.00	12.00	10.40
	CF5AA024	17,200	NONE	—	12.00	12.00	10.40
	CK3BA024	17,200	NONE	—	12.00	12.00	10.50
	CK5A/CK5BA018	17,000	NONE	—	11.50	11.50	10.20
	CK5A/CK5BW024	17,200	NONE	—	12.00	12.00	10.50
	CK5PA018	17,000	TXV	—	11.50	—	10.20
	CK5PA024	17,200	TXV	—	12.00	—	10.50
	CK5PW024	17,200	TXV	—	12.00	—	10.50
	F(A,B)4BN(F,C)018	17,000	TDR	11.50	—	11.50	10.15
	F(A,B)4BN(F,C)024	17,400	TDR	12.00	—	12.00	10.55
	FC4CNF024	17,400	TDR&TXV		—	12.00	10.55
	FF1DNA018	17,000	TDR	11.70	—	11.70	10.40
	FF1DNA024	17,200	TDR	12.00	—	12.00	10.45
	FG3AAA024	17,200	NONE	—	11.70	11.70	10.20
	FK4DNF001	17,600	TDR&TXV	—	—	13.00	11.65
	FK4DNF002	17,800	TDR&TXV	—	—	13.00	11.75
	FV4BNF002	17,800	TDR&TXV	13.00	—	—	11.75
	FX4BNF018	17,400	TDR&TXV	12.00	—	—	10.55
	COILS + 58CV(A,X)070-12 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA018	17,000	TDR	12.50	—	12.50	10.90
	CC5A/CD5AA024	17,200	TDR	12.50	—	12.50	11.25
	CC5A/CD5AW024	17,200	TDR	12.50	—	12.50	11.25
	CE3AA024	17,200	TDR	12.50	—	12.50	11.30
	CK3BA024	17,200	TDR	13.00	—	13.00	11.45
	CK5A/CK5BA018	17,000	TDR	12.50	—	12.50	11.15
	CK5A/CK5BA024	17,200	TDR	13.00	—	13.00	11.45
	CK5A/CK5BW024	17,200	TDR	13.00	—	13.00	11.45
	CK5PA018	17,000	TDR&TXV	12.50	—	—	11.10
	CK5PA024	17,200	TDR&TXV	13.00	—	—	11.45
	CK5PW024	17,200	TDR&TXV	13.00	—	—	11.45
	COILS + 58MVP060-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW024	17,200	TDR	13.00	—	13.00	11.25
	CE3AA024	17,200	TDR	13.00	—	13.00	11.30
	CK5A/CK5BW024	17,200	TDR	13.00	—	13.00	11.45
	CK5PW024	17,200	TDR&TXV	13.00	—	—	11.45
	COILS + 58MVP080-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW024	17,200	TDR	13.00	—	13.00	11.30
024-30	*CK5A/CK5BA030	23,000	NONE	—	12.00	12.00	10.05
	CC5A/CD5AA024	23,000	NONE	—	11.70	11.70	9.90
	CC5A/CD5AA030	23,000	NONE	—	12.00	12.00	9.95
	CC5A/CD5AW024	23,000	NONE	—	11.70	11.70	9.90
	CC5A/CD5AW030	23,000	NONE	—	12.00	12.00	9.95
	CE3AA024	23,000	NONE	—	12.00	12.00	10.00
	CE3AA030	23,000	NONE	—	12.00	12.00	10.10
	CF5AA024	23,000	NONE	—	11.70	11.70	9.95
	CK3BA024	23,000	NONE	—	11.70	11.70	10.05
	CK3BA030	23,000	NONE	—	12.00	12.00	10.05
	CK5A/CK5BA024	23,000	NONE	—	11.70	11.70	10.05
	CK5A/CK5BW024	23,000	NONE	—	11.70	11.70	10.05
	CK5A/CK5BW030	23,000	NONE	—	12.00	12.00	10.05
	CK5PA024	23,000	TXV	—	11.70	—	10.05
	CK5PA030	23,000	TXV	—	12.00	—	10.05
	CK5PW024	23,000	TXV	—	11.70	—	10.05
	CK5PW030	23,000	TXV	—	12.00	—	10.05
	F(A,B)4BN(F,C)024	23,200	TDR	12.00	—	12.00	10.10
	F(A,B)4BN(F,C)030	23,600	TDR	12.20	—	12.20	10.20
	FC4CNF024	23,200	TDR&TXV	12.00	—	—	10.05
	FC4CNF030	23,600	TDR&TXV	12.20	—	—	10.15
	FF1DNA024	23,000	TDR	11.70	—	11.70	9.95
	FF1DNA030	23,600	TDR	12.00	—	12.00	10.10
	FG3AAA024	22,800	NONE	—	11.70	11.70	9.80
	FK4DNF001	23,400	TDR&TXV	13.00	—	—	11.05
	FK4DNF002	23,600	TDR&TXV	13.50	—	—	11.10
	FK4DNF003	23,600	TDR&TXV	13.50	—	—	11.30
	FV4BNF002	23,600	TDR&TXV	13.50	—	—	11.10
	FV4BNF003	23,600	TDR&TXV	13.70	—	—	11.30
	FX4BNF030	23,600	TDR&TXV	12.20	—	—	10.25
	COILS + 58CV(A,X)070-12 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA024	23,000	TDR	12.50	—	12.50	10.65
	CC5A/CD5AA030	23,600	TDR	13.00	—	13.00	10.90
	CC5A/CD5AW024	23,000	TDR	12.50	—	12.50	10.65
	CC5A/CD5AW030	23,600	TDR	13.00	—	13.00	10.90
	CE3AA024	23,000	TDR	12.50	—	12.50	10.75
	CE3AA030	23,200	TDR	13.00	—	13.00	10.90
	CK3BA024	23,000	TDR	12.50	—	12.50	10.85
	CK3BA030	23,600	TDR	13.00	—	13.00	10.95
	CK5A/CK5BA024	23,000	TDR	12.50	—	12.50	10.85
	CK5A/CK5BA030	23,600	TDR	13.00	—	13.00	10.95
	CK5A/CK5BW024	23,000	TDR	12.50	—	12.50	10.85
	CK5A/CK5BW030	23,600	TDR	13.00	—	13.00	10.95

See notes on pg. 18.

Combination ratings continued

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCE-MENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
	CK5PA024	23,000	TDR&TXV	12.50	—	—	10.85
	CK5PA030	23,600	TDR&TXV	13.00	—	—	10.95
	CK5PW024	23,000	TDR&TXV	12.50	—	—	10.85
	CK5PW030	23,600	TDR&TXV	13.00	—	—	10.95
	COILS + 58MVP040-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW030	23,200	TDR	13.00	—	13.00	10.75
	CK5A/CK5BW030	23,200	TDR	13.00	—	13.00	10.80
	CK5PW030	23,200	TDR&TXV	13.00	—	—	10.80
	COILS + 58MVP060-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW024	23,000	TDR	12.50	—	12.50	10.60
	CC5A/CD5AW030	23,200	TDR	13.00	—	13.00	10.75
024-30	CK3BA024	23,000	TDR	12.50	—	12.50	10.75
	CK3BA030	23,200	TDR	13.00	—	13.00	10.80
	CK5A/CK5BW024	23,000	TDR	12.50	—	12.50	10.75
	CK5A/CK5BW030	23,200	TDR	13.00	—	13.00	10.80
	CK5PW024	23,000	TDR&TXV	12.50	—	—	10.75
	CK5PW030	23,200	TDR&TXV	13.00	—	—	10.80
	COILS + 58MVP080-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW024	23,000	TDR	12.50	—	12.50	10.80
	CC5A/CD5AW030	23,200	TDR	13.00	—	13.00	10.95
	CK5A/CK5BW024	23,000	TDR	12.50	—	12.50	10.95
	CK5A/CK5BW030	23,200	TDR	13.00	—	13.00	11.00
	CK5PW024	23,000	TDR&TXV	12.50	—	—	10.95
	CK5PW030	23,200	TDR&TXV	13.00	—	—	11.00
	*CK5A/CK5BA036	29,000	NONE	—	12.00	12.00	10.45
	CC5A/CD5AA030	28,000	NONE	—	11.70	11.70	10.10
	CC5A/CD5AA036	29,000	NONE	—	12.00	12.00	10.40
	CC5A/CD5AW030	28,000	NONE	—	11.70	11.70	10.10
	CC5A/CD5AW036	29,000	NONE	—	12.00	12.00	10.40
	CE3AA030	28,000	NONE	—	11.70	11.70	10.25
	CE3AA036	28,200	NONE	—	12.00	12.00	10.30
	CF5AA036	28,800	NONE	—	12.00	12.00	10.40
	CK3BA030	28,000	NONE	—	11.70	11.70	10.15
	CK3BA036	29,000	NONE	—	12.00	12.00	10.45
	CK5A/CK5BA030	28,000	NONE	—	11.70	11.70	10.50
	CK5A/CK5BT036	29,000	NONE	—	12.00	12.00	10.45
	CK5A/CK5BW030	28,000	NONE	—	11.70	11.70	10.15
	CK5A/CK5BW036	29,000	NONE	—	12.00	12.00	10.45
	CK5PA030	28,000	TXV	—	11.70	—	10.50
	CK5PA036	29,000	TXV	—	12.00	—	10.45
	CK5PT036	29,000	TXV	—	12.00	—	10.45
	CK5PW030	28,000	TXV	—	11.70	—	10.15
	CK5PW036	29,000	TXV	—	12.00	—	10.45
	F(A,B)4BN(F,C)030	27,800	TDR	12.00	—	12.00	10.30
	F(A,B)4BN(F,C)036	28,000	TDR	11.70	—	11.70	10.20
	FC4CNF030	27,800	TDR&TXV	—	—	11.70	10.25
	FC4CNF036	28,000	TDR&TXV	—	—	11.70	10.10
	FF1DNA030	28,400	TDR	11.70	—	11.70	10.15
	FG3AAA036	28,400	NONE	11.70	—	11.70	10.25
	FK4DNF001	29,000	TDR&TXV	—	—	11.00	9.95
	FK4DNF002	28,400	TDR&TXV	—	—	13.00	11.20
	FK4DNF003	28,400	TDR&TXV	—	—	13.50	11.55
	FK4DNF005	29,200	TDR&TXV	—	—	14.00	11.85
030-30, 50	FV4BNF002	28,400	TDR&TXV	13.20	—	—	11.25
	FV4BNF003	28,800	TDR&TXV	13.70	—	—	11.55
	FV4BNF005	29,200	TDR&TXV	14.00	—	—	11.85
	FX4BNF030	27,800	TDR&TXV	12.00	—	—	10.40
	FX4BNF036	28,000	TDR&TXV	11.70	—	—	10.20
	COILS + 58CV(A,X)070-12 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA030	28,000	TDR	12.50	—	12.50	10.90
	CC5A/CD5AA036	29,000	TDR	13.00	—	13.00	11.25
	CC5A/CD5AW030	28,000	TDR	12.50	—	12.50	10.90
	CE3AA030	28,000	TDR	12.50	—	12.50	11.00
	CE3AA036	28,600	TDR	12.50	—	12.50	11.10
	CK3BA030	28,000	TDR	12.50	—	12.50	10.95
	CK3BA036	29,000	TDR	13.00	—	13.00	11.30
	CK5A/CK5BA030	28,000	TDR	12.50	—	12.50	10.95
	CK5A/CK5BA036	29,000	TDR	13.00	—	13.00	11.30
	CK5A/CK5BT036	29,000	TDR	13.00	—	13.00	11.30
	CK5A/CK5BW030	28,000	TDR	12.50	—	12.50	10.95
	CK5PA030	28,000	TDR&TXV	12.50	—	—	10.95
	CK5PA036	29,000	TDR&TXV	13.00	—	—	11.30
	CK5PT036	29,000	TDR&TXV	13.00	—	—	11.30
	CK5PW030	28,000	TDR&TXV	12.50	—	—	10.95
	COILS + 58CV(A,X)090-16 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA030	28,000	TDR	12.50	—	12.50	11.05
	CC5A/CD5AA036	29,000	TDR	13.00	—	13.00	11.40
	CC5A/CD5AW030	28,000	TDR	12.50	—	12.50	11.05
	CC5A/CD5AW036	29,000	TDR	13.00	—	13.00	11.40
	CE3AA030	28,000	TDR	12.50	—	12.50	11.15
	CE3AA036	28,600	TDR	12.50	—	12.50	11.30
	CK3BA030	28,000	TDR	12.50	—	12.50	11.10

See notes on pg. 18.

Combination ratings continued

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCE-MENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
030-30, 50	CK3BA036	29,000	TDR	13.00	—	13.00	11.50
	CK5A/CK5BA030	28,000	TDR	12.50	—	12.50	11.10
	CK5A/CK5BA036	29,000	TDR	13.00	—	13.00	11.50
	CK5A/CK5BW030	28,000	TDR	12.50	—	12.50	11.10
	CK5A/CK5BW036	29,000	TDR	13.00	—	13.00	11.50
	CK5PA030	28,000	TDR&TXV	12.50	—	—	11.10
	CK5PA036	29,000	TDR&TXV	13.00	—	—	11.45
	CK5PT036	29,000	TDR&TXV	13.00	—	—	11.45
	CK5PW030	28,000	TDR&TXV	12.50	—	—	11.10
	CK5PW036	29,000	TDR&TXV	13.00	—	—	11.45
	COILS + 58MVP040-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW030	28,000	TDR	12.30	—	12.30	10.60
	CC5A/CD5AW036	29,000	TDR	13.00	—	13.00	11.05
	CK5A/CK5BW030	27,800	TDR	12.30	—	12.30	10.65
	CK5A/CK5BW036	29,000	TDR	13.00	—	13.00	11.10
	CK5PW030	27,800	TDR&TXV	12.30	—	—	10.65
	CK5PW036	29,000	TDR&TXV	13.00	—	—	11.10
	COILS + 58MVP060-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA036	29,000	TDR	12.70	—	12.70	11.05
	CC5A/CD5AW030	28,000	TDR	12.30	—	12.30	10.60
	CK3BA030	28,000	TDR	12.30	—	12.30	10.65
	CK3BA036	29,000	TDR	13.00	—	13.00	11.10
	CK5A/CK5BA036	29,000	TDR	13.00	—	13.00	11.10
	CK5A/CK5BW030	28,000	TDR	12.30	—	12.30	10.65
	CK5PA036	29,000	TDR&TXV	13.00	—	—	11.10
	CK5PW030	28,000	TDR&TXV	12.30	—	—	10.65
	COILS + 58MVP080-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW030	28,000	TDR	12.50	—	12.50	10.70
	CC5A/CD5AW036	29,000	TDR	13.00	—	13.00	11.15
	CK5A/CK5BW030	28,000	TDR	12.50	—	12.50	10.75
	CK5A/CK5BW036	29,000	TDR	13.00	—	13.00	11.20
	CK5PW030	28,000	TDR&TXV	12.50	—	—	10.75
	CK5PW036	29,000	TDR&TXV	13.00	—	—	11.20
	COILS + 58MVP080-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW030	28,000	TDR	12.30	—	12.30	10.55
	CC5A/CD5AW036	29,000	TDR	12.70	—	12.70	11.05
	CK5A/CK5BW030	28,000	TDR	12.30	—	12.30	10.60
	CK5A/CK5BW036	29,000	TDR	13.00	—	13.00	11.05
	CK5PW030	28,000	TDR&TXV	12.30	—	—	10.60
	CK5PW036	29,000	TDR&TXV	13.00	—	—	11.05
	COILS + 58MVP100-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW030	28,000	TDR	12.50	—	12.50	10.95
	CC5A/CD5AW036	29,000	TDR	13.00	—	13.00	11.40
	CK5A/CK5BW030	28,000	TDR	12.50	—	12.50	11.00
	CK5A/CK5BW036	29,000	TDR	13.00	—	13.00	11.40
	CK5PW030	28,000	TDR&TXV	12.50	—	—	11.00
	CK5PW036	29,000	TDR&TXV	13.00	—	—	11.40
	COILS + 58MVP120-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW036	29,000	TDR	13.00	—	13.00	11.35
	CK5A/CK5BW036	29,000	TDR	13.00	—	13.00	11.35
	CK5PW036	29,000	TDR&TXV	13.00	—	—	11.35
036-30, 31, 50	*CK5A/CK5BA042	35,000	NONE	12.00	—	12.00	10.50
	CC5A/CD5AA036	35,000	NONE	—	12.00	12.00	10.50
	CC5A/CD5AA042	35,000	NONE	—	12.00	12.00	10.50
	CC5A/CD5AW036	35,000	NONE	—	12.00	12.00	10.50
	CC5A/CD5AW042	34,800	NONE	—	12.00	12.00	10.40
	CE3AA036	34,600	NONE	—	11.70	11.70	10.40
	CE3AA042	35,000	NONE	—	12.00	12.00	10.55
	CF5AA036	34,800	NONE	—	12.00	12.00	10.45
	CK3BA036	35,000	NONE	—	12.00	12.00	10.50
	CK3BA042	35,000	NONE	—	12.00	12.00	10.50
	CK5A/CK5BA036	35,000	NONE	—	12.00	12.00	10.50
	CK5A/CK5BE042	35,200	NONE	—	12.10	12.10	10.55
	CK5A/CK5BT036	35,000	NONE	—	12.00	12.00	10.50
	CK5A/CK5BT042	35,000	NONE	—	12.00	12.00	10.50
	CK5A/CK5BW036	35,000	NONE	—	12.00	12.00	10.50
	CK5PA036	35,000	TXV	—	12.00	—	10.50
	CK5PE042	35,200	TXV	—	12.10	—	10.55
	CK5PT036	35,000	TXV	—	12.00	—	10.50
	CK5PT042	35,000	TXV	—	12.00	—	10.50
	CK5PW036	35,000	TXV	—	12.00	—	10.50
	F(A,B)4BN(F,B,C)042	35,000	TDR	12.00	—	12.00	10.40
	F(A,B)4BN(F,C)036	34,000	TDR	11.50	—	11.50	10.15
	FC4CN(F,B)042	35,000	TDR&TXV	—	—	12.00	10.40
	FC4CNF036	35,000	TDR&TXV	—	—	11.50	10.15
	FG3AAA036	34,000	NONE	—	11.50	11.50	10.25
	FK4DNB006	35,400	TDR&TXV	—	—	14.00	12.10
	FK4DNF001	33,800	TDR&TXV	—	—	12.50	10.90
	FK4DNF002	34,000	TDR&TXV	—	—	12.50	10.95
	FK4DNF003	34,200	TDR&TXV	—	—	13.00	11.45
	FK4DNF005	35,000	TDR&TXV	—	—	13.50	11.85

See notes on pg. 18.

Combination ratings continued

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCE-MENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
	FV4BNB006	35,800	TDR&TXV	14.00	—	—	12.10
	FV4BNF002	34,000	TDR&TXV	12.50	—	—	10.95
	FV4BNF003	34,200	TDR&TXV	13.00	—	—	11.45
	FV4BNF005	35,000	TDR&TXV	13.70	—	—	11.85
	FX4BNF036	34,000	TDR&TXV	11.50	—	—	10.25
	FX4BNF042	34,000	TDR&TXV	12.10	—	—	10.60
	COILS + 58CV(A,X)070-12 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA036	34,600	TDR	12.50	—	12.50	11.05
	CE3AA036	34,600	TDR	12.50	—	12.50	10.95
	CE3AA042	34,600	TDR	12.50	—	12.50	11.15
	CK3BA036	34,600	TDR	12.50	—	12.50	11.10
	CK5A/CK5BA036	34,600	TDR	12.50	—	12.50	11.10
	CK5A/CK5BE042	34,600	TDR	12.50	—	12.50	11.20
	CK5A/CK5BT036	34,600	TDR	12.50	—	12.50	11.10
	CK5PA036	34,600	TDR&TXV	12.50	—	—	11.10
	CK5PE042	34,600	TDR&TXV	12.50	—	—	11.20
	CK5PT036	34,600	TDR&TXV	12.50	—	—	11.10
	COILS + 58CV(A,X)090-16 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA036	34,600	TDR	12.50	—	12.50	11.25
	CC5A/CD5AA042	34,600	TDR	13.00	—	13.00	11.35
	CC5A/CD5AW036	34,600	TDR	12.50	—	12.50	11.25
	CE3AA036	34,600	TDR	12.50	—	12.50	11.15
	CE3AA042	34,600	TDR	12.50	—	12.50	11.35
	CK3BA036	34,600	TDR	12.50	—	12.50	11.30
	CK3BA042	34,600	TDR	13.00	—	13.00	11.35
	CK5A/CK5BA036	34,600	TDR	12.50	—	12.50	11.30
	CK5A/CK5BA042	34,600	TDR	13.00	—	13.00	11.35
	CK5A/CK5BE042	34,600	TDR	13.00	—	13.00	11.40
	CK5A/CK5BT036	34,600	TDR	12.50	—	12.50	11.30
	CK5A/CK5BT042	34,600	TDR	13.00	—	13.00	11.35
	CK5A/CK5BW036	34,600	TDR	12.50	—	12.50	11.30
	CK5PA036	34,600	TDR&TXV	12.50	—	—	11.25
	CK5PA042	34,600	TDR&TXV	13.00	—	—	11.30
	CK5PE042	34,600	TDR&TXV	13.00	—	—	11.40
	CK5PT036	34,600	TDR&TXV	12.50	—	—	11.25
	CK5PT042	34,600	TDR&TXV	13.00	—	—	11.30
	CK5PW036	34,600	TDR&TXV	12.50	—	—	11.25
	COILS + 58CV(A,X)110-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA036	34,600	TDR	12.50	—	12.50	11.30
	CC5A/CD5AA042	34,600	TDR	13.00	—	13.00	11.45
036-30, 31, 50	CC5A/CD5AW036	34,600	TDR	12.50	—	12.50	11.30
	CC5A/CD5AW042	34,600	TDR	13.00	—	13.00	11.40
	CE3AA036	34,600	TDR	12.50	—	12.50	11.20
	CE3AA042	34,600	TDR	12.50	—	12.50	11.45
	CK3BA036	34,600	TDR	12.50	—	12.50	11.35
	CK3BA042	34,600	TDR	13.00	—	13.00	11.45
	CK5A/CK5BA036	34,600	TDR	12.50	—	12.50	11.35
	CK5A/CK5BA042	34,600	TDR	13.00	—	13.00	11.45
	CK5A/CK5BT036	34,600	TDR	12.50	—	12.50	11.35
	CK5A/CK5BT042	34,600	TDR	13.00	—	13.00	11.45
	CK5A/CK5BW036	34,600	TDR	12.50	—	12.50	11.35
	CK5PA036	34,600	TDR&TXV	12.50	—	—	11.35
	CK5PA042	34,600	TDR&TXV	13.00	—	—	11.40
	CK5PT036	34,600	TDR&TXV	12.50	—	—	11.35
	CK5PT042	34,600	TDR&TXV	13.00	—	—	11.40
	CK5PW036	34,600	TDR&TXV	12.50	—	—	11.35
	COILS + 58CV(A,X)135-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	34,600	TDR	13.00	—	13.00	11.40
	CC5A/CD5AW036	34,600	TDR	12.50	—	12.50	11.25
	CC5A/CD5AW042	34,600	TDR	13.00	—	13.00	11.35
	CE3AA036	34,600	TDR	12.50	—	12.50	11.15
	CE3AA042	34,600	TDR	12.50	—	12.50	11.40
	CK3BA042	34,600	TDR	13.00	—	13.00	11.40
	CK5A/CK5BA042	34,600	TDR	13.00	—	13.00	11.40
	CK5A/CK5BT042	34,600	TDR	13.00	—	13.00	11.40
	CK5A/CK5BW036	34,600	TDR	12.50	—	12.50	11.30
	CK5PA042	34,600	TDR&TXV	13.00	—	—	11.35
	CK5PT042	34,600	TDR&TXV	13.00	—	—	11.35
	CK5PW036	34,600	TDR&TXV	12.50	—	—	11.30
	COILS + 58CV(A,X)155-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	34,600	TDR	13.00	—	13.00	11.50
	CC5A/CD5AW036	34,600	TDR	12.50	—	12.50	11.30
	CC5A/CD5AW042	34,600	TDR	13.00	—	13.00	11.45
	CE3AA036	34,600	TDR	12.50	—	12.50	11.20
	CE3AA042	34,600	TDR	12.50	—	12.50	11.50
	CK3BA042	34,600	TDR	13.00	—	13.00	11.45
	CK5A/CK5BA042	34,600	TDR	13.00	—	13.00	11.45
	CK5A/CK5BT042	34,600	TDR	13.00	—	13.00	11.45
	CK5A/CK5BW036	34,600	TDR	12.50	—	12.50	11.35
	CK5PA042	34,600	TDR&TXV	13.00	—	—	11.45
	CK5PT042	34,600	TDR&TXV	13.00	—	—	11.45
	CK5PW036	34,600	TDR&TXV	12.50	—	—	11.35

See notes on pg. 18.

Combination ratings continued

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCE-MENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
	COILS + 58MVP060-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA036	34,600	TDR	12.30	—	12.30	10.70
	CK3BA036	34,600	TDR	12.50	—	12.50	10.75
	CK5A/CK5BA036	34,600	TDR	12.50	—	12.50	10.75
	CK5A/CK5BT036	34,600	TDR	12.50	—	12.50	10.75
	CK5PA036	34,600	TDR&TXV	12.50	—	—	10.75
	CK5PT036	34,600	TDR&TXV	12.50	—	—	10.75
	COILS + 58MVP080-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	34,600	TDR	12.50	—	12.50	11.05
	CC5A/CD5AW036	34,600	TDR	12.50	—	12.50	10.90
	CC5A/CD5AW042	34,600	TDR	12.50	—	12.50	11.00
	CK5A/CK5BA042	34,600	TDR	12.50	—	12.50	11.00
	CK5A/CK5BE042	34,600	TDR	12.50	—	12.50	11.25
	CK5A/CK5BT042	34,600	TDR	12.50	—	12.50	11.00
	CK5A/CK5BW036	34,600	TDR	12.50	—	12.50	10.85
	CK5PA042	34,600	TDR&TXV	12.50	—	—	11.00
	CK5PE042	34,600	TDR&TXV	12.50	—	—	11.25
	CK5PT042	34,600	TDR&TXV	12.50	—	—	11.00
	CK5PW036	34,600	TDR&TXV	12.50	—	—	10.85
	COILS + 58MVP080-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	34,600	TDR	12.50	—	12.50	11.15
	CC5A/CD5AW036	34,600	TDR	12.50	—	12.50	11.00
	CC5A/CD5AW042	34,600	TDR	12.50	—	12.50	11.05
	CK5A/CK5BA042	34,600	TDR	12.50	—	12.50	10.85
036-30, 31, 50	CK5A/CK5BT042	34,600	TDR	12.50	—	12.50	10.85
	CK5A/CK5BW036	34,600	TDR	12.30	—	12.30	10.70
	CK5PA042	34,600	TDR&TXV	12.50	—	—	10.85
	CK5PT042	34,600	TDR&TXV	12.50	—	—	10.85
	CK5PW036	34,600	TDR&TXV	12.30	—	—	10.70
	COILS + 58MVP100-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	34,600	TDR	12.50	—	12.50	11.15
	CC5A/CD5AW036	34,600	TDR	12.50	—	12.50	11.00
	CC5A/CD5AW042	34,600	TDR	12.50	—	12.50	11.05
	CK5A/CK5BA042	34,600	TDR	12.50	—	12.50	11.20
	CK5A/CK5BE042	34,600	TDR	12.50	—	12.50	11.40
	CK5A/CK5BT042	34,600	TDR	12.50	—	12.50	11.20
	CK5A/CK5BW036	34,600	TDR	12.50	—	12.50	11.05
	CK5PA042	34,600	TDR&TXV	12.50	—	—	11.20
	CK5PE042	34,600	TDR&TXV	12.50	—	—	11.40
	CK5PT042	34,600	TDR&TXV	12.50	—	—	11.20
	CK5PW036	34,600	TDR&TXV	12.50	—	—	11.05
	COILS + 58MVP120-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	34,600	TDR	12.50	—	12.50	11.15
	CC5A/CD5AW036	34,600	TDR	12.50	—	12.50	11.00
	CK5A/CK5BA042	34,600	TDR	12.50	—	12.50	11.20
	CK5A/CK5BT042	34,600	TDR	12.50	—	12.50	11.20
	CK5A/CK5BW036	34,600	TDR	12.50	—	12.50	11.10
	CK5PA042	34,600	TDR&TXV	12.50	—	—	11.20
	CK5PT042	34,600	TDR&TXV	12.50	—	—	11.20
	CK5PW036	34,600	TDR&TXV	12.50	—	—	11.10
	*CK5A/CK5BA048	40,000	NONE	—	12.00	12.00	10.45
	CC5A/CD5AA042	39,500	NONE	—	11.70	11.70	10.35
	CC5A/CD5AC048	39,500	NONE	—	11.70	11.70	10.30
	CC5A/CD5AW042	39,500	NONE	—	11.70	11.70	10.35
	CC5A/CD5AW048	40,000	NONE	—	12.00	12.00	10.40
	CD5AA048	40,000	NONE	—	12.00	12.00	10.45
	CE3AA042	39,500	NONE	—	12.00	12.00	10.45
	CE3AA048	40,000	NONE	—	12.00	12.00	10.50
	CF5AA048	39,500	NONE	—	12.00	12.00	10.45
	CK3BA042	39,500	NONE	—	11.70	11.70	10.40
	CK3BA048	40,000	NONE	—	12.00	12.00	10.45
	CK5A/CK5BA042	39,500	NONE	—	11.70	11.70	10.40
	CK5A/CK5BE042	39,500	NONE	—	12.00	12.00	10.45
	CK5A/CK5BT042	39,500	NONE	—	11.70	11.70	10.40
	CK5A/CK5BT048	40,000	NONE	—	12.00	12.00	10.45
042-30, 50	CK5A/CK5BW048	40,000	NONE	—	12.00	12.00	10.45
	CK5PA042	39,500	TXV	—	11.70	—	10.40
	CK5PA048	40,000	TXV	—	12.00	—	10.45
	CK5PE042	39,500	TXV	—	12.00	—	10.45
	CK5PT042	39,500	TXV	—	11.70	—	10.40
	CK5PT048	40,000	TXV	—	12.00	—	10.45
	CK5PW048	40,000	TXV	—	12.00	—	10.45
	F(A,B)4BN(F,B,C)042	39,500	TDR	11.70	—	11.70	10.25
	F(A,B)4BN(F,B,C)048	40,000	TDR	12.00	—	12.00	10.40
	FC4CN(F,B)042	39,000	TDR&TXV	—	—	11.70	10.10
	FC4CN(F,B)048	39,500	TDR&TXV	—	—	12.00	10.25
	FC4CNB054	40,500	TDR&TXV	—	—	12.20	10.75
	FG3AAA048	40,000	NONE	—	11.70	11.70	10.45
	FK4DNB006	40,500	TDR&TXV	—	—	13.50	11.80
	FK4DNF003	38,500	TDR&TXV	—	—	12.50	11.10
	FK4DNF005	40,000	TDR&TXV	—	—	13.50	11.45
	FV4BNB006	40,500	TDR&TXV	13.70	—	—	11.80

See notes on pg. 18.

Combination ratings continued

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCE-MENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
	FV4BNF003	38,500	TDR&TXV	12.70	—	—	11.10
	FV4BNF005	40,500	TDR&TXV	13.20	—	—	11.45
	FX4BNF042	38,500	TDR&TXV	11.70	—	—	10.25
	FX4BNF048	39,500	TDR&TXV	12.00	—	—	10.40
	COILS + 58CV(A,X)090-16 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	39,000	TDR	12.20	—	12.20	11.05
	CC5A/CD5AC048	39,000	TDR	12.50	—	12.50	11.05
	CD5AA048	39,500	TDR	12.50	—	12.50	11.20
	CE3AA042	39,000	TDR	12.50	—	12.50	11.10
	CE3AA048	39,500	TDR	12.50	—	12.50	11.15
	CK3BA042	39,000	TDR	12.50	—	12.50	11.05
	CK3BA048	39,500	TDR	13.00	—	13.00	11.20
	CK5A/CK5BA042	39,000	TDR	12.50	—	12.50	11.05
	CK5A/CK5BA048	39,500	TDR	13.00	—	13.00	11.20
	CK5A/CK5BE042	39,000	TDR	12.50	—	12.50	11.15
	CK5A/CK5BT042	39,000	TDR	12.50	—	12.50	11.05
	CK5A/CK5BT048	39,500	TDR	13.00	—	13.00	11.20
	CK5PA042	39,000	TDR&TXV	12.50	—	—	11.05
	CK5PA048	39,500	TDR&TXV	13.00	—	—	11.20
	CK5PE042	39,000	TDR&TXV	12.50	—	—	11.10
	CK5PT042	39,000	TDR&TXV	12.50	—	—	11.05
	CK5PT048	39,500	TDR&TXV	13.00	—	—	11.20
	COILS + 58CV(A,X)110-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	39,000	TDR	12.50	—	12.50	11.15
	CC5A/CD5AC048	39,000	TDR	13.00	—	13.00	11.20
	CC5A/CD5AW042	39,000	TDR	12.50	—	12.50	11.05
	CC5A/CD5AW048	39,500	TDR	13.00	—	13.00	11.30
	CD5AA048	39,500	TDR	13.00	—	13.00	11.30
	CE3AA042	39,000	TDR	12.50	—	12.50	11.20
	CE3AA048	39,500	TDR	12.50	—	12.50	11.25
	CK3BA042	39,000	TDR	12.50	—	12.50	11.20
	CK3BA048	39,500	TDR	13.00	—	13.00	11.30
	CK5A/CK5BA042	39,000	TDR	12.50	—	12.50	11.20
	CK5A/CK5BA048	39,500	TDR	13.00	—	13.00	11.30
	CK5A/CK5BT042	39,000	TDR	12.50	—	12.50	11.20
	CK5A/CK5BT048	39,500	TDR	13.00	—	13.00	11.30
	CK5A/CK5BW048	39,500	TDR	13.00	—	13.00	11.30
	CK5PA042	39,000	TDR&TXV	12.50	—	—	11.20
	CK5PA048	39,500	TDR&TXV	13.00	—	—	11.30
	CK5PT042	39,000	TDR&TXV	12.50	—	—	11.20
042-30, 50	CK5PT048	39,500	TDR&TXV	13.00	—	—	11.30
	CK5PW048	39,500	TDR&TXV	13.00	—	—	11.30
	COILS + 58CV(A,X)135-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	39,000	TDR	12.50	—	12.50	11.15
	CC5A/CD5AC048	39,000	TDR	13.00	—	13.00	11.20
	CC5A/CD5AW042	39,000	TDR	12.50	—	12.50	11.05
	CC5A/CD5AW048	39,500	TDR	13.00	—	13.00	11.35
	CD5AA048	39,500	TDR	13.00	—	13.00	11.35
	CE3AA042	39,000	TDR	12.50	—	12.50	11.20
	CE3AA048	39,500	TDR	12.50	—	12.50	11.25
	CK3BA042	39,000	TDR	12.50	—	12.50	11.20
	CK3BA048	39,500	TDR	13.00	—	13.00	11.35
	CK5A/CK5BA042	39,000	TDR	12.50	—	12.50	11.20
	CK5A/CK5BA048	39,500	TDR	13.00	—	13.00	11.35
	CK5A/CK5BT042	39,000	TDR	12.50	—	12.50	11.20
	CK5A/CK5BT048	39,500	TDR	13.00	—	13.00	11.35
	CK5A/CK5BW048	39,500	TDR	13.00	—	13.00	11.35
	CK5PA042	39,000	TDR&TXV	12.50	—	—	11.20
	CK5PA048	39,500	TDR&TXV	13.00	—	—	11.35
	CK5PT042	39,000	TDR&TXV	12.50	—	—	11.20
	CK5PT048	39,500	TDR&TXV	13.00	—	—	11.35
	CK5PW048	39,500	TDR&TXV	13.00	—	—	11.35
	COILS + 58CV(A,X)155-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	39,000	TDR	12.50	—	12.50	11.20
	CC5A/CD5AC048	39,000	TDR	13.00	—	13.00	11.25
	CC5A/CD5AW042	39,000	TDR	12.50	—	12.50	11.10
	CC5A/CD5AW048	39,500	TDR	13.00	—	13.00	11.35
	CD5AA048	39,500	TDR	13.00	—	13.00	11.35
	CE3AA042	39,000	TDR	12.50	—	12.50	11.25
	CE3AA048	39,500	TDR	12.50	—	12.50	11.30
	CK3BA042	39,000	TDR	12.50	—	12.50	11.20
	CK3BA048	39,500	TDR	13.00	—	13.00	11.35
	CK5A/CK5BA042	39,000	TDR	12.50	—	12.50	11.20
	CK5A/CK5BA048	39,500	TDR	13.00	—	13.00	11.35
	CK5A/CK5BT042	39,000	TDR	12.50	—	12.50	11.20
	CK5A/CK5BT048	39,500	TDR	13.00	—	13.00	11.35
	CK5A/CK5BW048	39,500	TDR	13.00	—	13.00	11.35
	CK5PA042	39,000	TDR&TXV	12.50	—	—	11.25
	CK5PA048	39,500	TDR&TXV	13.00	—	—	11.35
	CK5PT042	39,000	TDR&TXV	12.50	—	—	11.25
	CK5PT048	39,500	TDR&TXV	13.00	—	—	11.35

See notes on pg. 18.

Combination ratings continued

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCE-MENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
	CK5PW048	39,500	TDR&TXV	13.00	—	—	11.35
	COILS + 58MVP040-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	39,000	TDR	12.20	—	12.20	10.80
	CC5A/CD5AW048	39,500	TDR	12.50	—	12.50	10.90
	CK5A/CK5BA042	39,000	TDR	12.20	—	12.20	10.80
	CK5A/CK5BW048	39,500	TDR	12.50	—	12.50	10.95
	CK5PA042	39,000	TDR&TXV	12.20	—	—	10.80
	CK5PW048	39,500	TDR&TXV	12.50	—	—	10.95
	COILS + 58MVP060-14 VARIABLE-SPEED FURNACE						
	CK3BA042	39,000	TDR	12.20	—	12.20	10.80
	COILS + 58MVP080-14 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	39,000	TDR	12.50	—	12.50	10.90
	CD5AA048	39,500	TDR	12.50	—	12.50	11.00
	CK3BA042	39,000	TDR	12.50	—	12.50	10.95
	CK3BA048	39,500	TDR	12.50	—	12.50	11.10
	CK5A/CK5BA042	39,000	TDR	12.50	—	12.50	10.95
	CK5A/CK5BA048	39,500	TDR	12.50	—	12.50	11.10
	CK5PA042	39,000	TDR&TXV	12.50	—	—	10.95
	CK5PA048	39,500	TDR&TXV	12.50	—	—	11.10
	COILS + 58MVP080-20 VARIABLE-SPEED FURNACE						
042-30, 50	CC5A/CD5AA042	39,000	TDR	12.20	—	12.20	10.80
	CD5AA048	39,500	TDR	12.50	—	12.50	10.90
	CK3BA042	39,000	TDR	12.20	—	12.20	10.80
	CK3BA048	39,500	TDR	12.50	—	12.50	10.95
	CK5A/CK5BA042	39,000	TDR	12.20	—	12.20	10.80
	CK5A/CK5BA048	39,500	TDR	12.50	—	12.50	10.95
	CK5PA042	39,000	TDR&TXV	12.20	—	—	10.80
	CK5PA048	39,500	TDR&TXV	12.50	—	—	10.95
	COILS + 58MVP100-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	39,000	TDR	12.50	—	12.50	11.10
	CD5AA048	39,500	TDR	12.50	—	12.50	11.20
	CK3BA042	39,000	TDR	12.50	—	12.50	11.15
	CK5A/CK5BA042	39,000	TDR	12.50	—	12.50	11.15
	CK5A/CK5BA048	39,500	TDR	12.50	—	12.50	11.25
	CK5PA042	39,000	TDR&TXV	12.50	—	—	11.15
	CK5PA048	39,500	TDR&TXV	12.50	—	—	11.25
	COILS + 58MVP120-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA042	39,000	TDR	12.50	—	12.50	11.10
	CC5A/CD5AW048	39,500	TDR	12.50	—	12.50	11.20
	CK5A/CK5BA042	39,000	TDR	12.50	—	12.50	11.10
	CK5A/CK5BW048	39,500	TDR	12.50	—	12.50	11.25
	CK5PA042	39,000	TDR&TXV	12.50	—	—	11.10
	CK5PW048	39,500	TDR&TXV	12.50	—	—	11.25
	*CK5A/CK5BA060	46,000	NONE	—	12.00	12.00	10.45
	CC5A/CD5AA060	45,000	NONE	—	11.70	11.70	10.20
	CC5A/CD5AC048	44,000	NONE	—	11.50	11.50	10.10
	CC5A/CD5AW048	45,000	NONE	—	11.70	11.70	10.20
	CC5A/CD5AW060	46,500	NONE	—	12.00	12.00	10.40
	CD5AA048	45,000	NONE	—	11.70	11.70	10.20
	CE3AA048	45,000	NONE	—	11.70	11.70	10.30
	CE3AA060	46,000	NONE	—	12.00	12.00	10.45
	CF5AA048	44,000	NONE	—	11.70	11.70	10.25
	CK3BA048	45,000	NONE	—	11.70	11.70	10.20
	CK3BA060	46,000	NONE	—	12.00	12.00	10.45
	CK5A/CK5BA048	45,000	NONE	—	11.70	11.70	10.20
	CK5A/CK5BT048	45,000	NONE	—	11.70	11.70	10.20
	CK5A/CK5BT060	46,000	NONE	—	12.00	12.00	10.45
	CK5A/CK5BW048	45,000	NONE	—	11.70	11.70	10.20
	CK5A/CK5BX060	46,000	NONE	—	12.00	12.00	10.55
	CK5PA048	45,000	TXV	—	11.70	—	10.20
	CK5PA060	46,000	TXV	—	12.00	—	10.45
048-30, 50	CK5PT048	45,000	TXV	—	11.70	—	10.20
	CK5PT060	46,000	TXV	—	12.00	—	10.45
	CK5PW048	45,000	TXV	—	11.70	—	10.20
	CK5PX060	46,000	TXV	—	12.00	—	10.55
	F(A,B)4BN(F,B,C)048	45,000	TDR	11.70	—	11.70	10.15
	F(A,B)4BN(F,B,C)060	46,000	TDR	11.70	—	11.70	10.15
	FB4BNB070	46,500	TDR	12.00	—	12.00	10.50
	FC4CN(F,B)048	44,500	TDR&TXV	—	—	11.50	10.05
	FC4CN(F,B)060	45,000	TDR&TXV	—	—	11.50	10.05
	FC4CNB054	45,000	TDR&TXV	—	—	12.00	10.45
	FC4CNB070	46,000	TDR&TXV	—	—	12.00	10.40
	FG3AAA048	44,000	NONE	—	11.50	11.50	10.20
	FG3AAA060	45,000	NONE	—	11.70	11.70	10.30
	FK4DNB006	46,000	TDR&TXV	—	—	13.20	11.45
	FK4DNF005	45,000	TDR&TXV	—	—	12.50	11.15
	FV4BNB006	46,000	TDR&TXV	13.20	—	—	11.45
	FV4BNF005	45,000	TDR&TXV	12.70	—	—	11.15
	FX4BNB060	45,500	TDR&TXV	12.00	—	—	10.40
	FX4BNF048	45,000	TDR&TXV	11.70	—	—	10.20

See notes on pg. 18.

Combination ratings continued

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCE-MENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
048-30, 50	**COILS + 58CV(A,X)090-16 VARIABLE-SPEED FURNACE**						
	CC5A/CD5AC048	44,000	TDR	12.00	—	12.00	10.60
	CD5AA048	44,500	TDR	12.00	—	12.00	10.70
	CE3AA048	44,500	TDR	12.00	—	12.00	10.65
	CE3AA060	45,000	TDR	12.50	—	12.50	10.95
	CK3BA048	44,500	TDR	12.00	—	12.00	10.65
	CK5A/CK5BA048	44,500	TDR	12.00	—	12.00	10.65
	CK5A/CK5BT048	44,500	TDR	12.00	—	12.00	10.65
	CK5PA048	44,500	TDR&TXV	12.00	—	—	10.55
	CK5PT048	44,500	TDR&TXV	12.00	—	—	10.55
	COILS + 58CV(A,X)110-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	45,000	TDR	12.50	—	12.50	10.90
	CC5A/CD5AC048	44,000	TDR	12.00	—	12.00	10.80
	CC5A/CD5AW048	44,500	TDR	12.50	—	12.50	10.90
	CD5AA048	44,500	TDR	12.50	—	12.50	10.90
	CD5PX060	46,000	TDR&TXV	13.00	—	—	11.20
	CE3AA048	44,500	TDR	12.50	—	12.50	10.85
	CE3AA060	45,000	TDR	12.50	—	12.50	11.15
	CK3BA048	44,500	TDR	12.50	—	12.50	10.90
	CK3BA060	45,000	TDR	12.50	—	12.50	11.15
	CK5A/CK5BA048	44,500	TDR	12.50	—	12.50	10.90
	CK5A/CK5BA060	45,000	TDR	12.50	—	12.50	11.15
	CK5A/CK5BT048	44,500	TDR	12.50	—	12.50	10.90
	CK5A/CK5BT060	45,000	TDR	12.50	—	12.50	11.15
	CK5A/CK5BW048	44,500	TDR	12.50	—	12.50	10.90
	CK5A/CK5BX060	46,000	TDR	13.00	—	13.00	11.35
	CK5PA048	44,500	TDR&TXV	12.50	—	—	10.80
	CK5PA060	45,000	TDR&TXV	12.50	—	—	11.10
	CK5PT048	44,500	TDR&TXV	12.50	—	—	10.80
	CK5PT060	45,000	TDR&TXV	12.50	—	—	11.10
	CK5PW048	44,500	TDR&TXV	12.50	—	—	10.80
	CK5PX060	46,000	TDR&TXV	13.00	—	—	11.30
	COILS + 58CV(A,X)135-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	45,000	TDR	12.50	—	12.50	10.90
	CC5A/CD5AC048	44,000	TDR	12.00	—	12.00	10.75
	CC5A/CD5AW048	44,500	TDR	12.50	—	12.50	10.85
	CC5A/CD5AW060	45,000	TDR	12.50	—	12.50	11.10
	CD5AA048	44,500	TDR	12.50	—	12.50	10.85
	CE3AA048	44,500	TDR	12.00	—	12.00	10.80
	CE3AA060	45,000	TDR	12.50	—	12.50	11.10
	CK3BA048	44,500	TDR	12.50	—	12.50	10.85
	CK3BA060	45,000	TDR	12.50	—	12.50	11.10
	CK5A/CK5BA048	44,500	TDR	12.50	—	12.50	10.85
	CK5A/CK5BA060	45,000	TDR	12.50	—	12.50	11.10
	CK5A/CK5BT048	44,500	TDR	12.50	—	12.50	10.85
	CK5A/CK5BT060	45,000	TDR	12.50	—	12.50	11.10
	CK5A/CK5BW048	44,500	TDR	12.50	—	12.50	10.85
	CK5A/CK5BX060	46,000	TDR	13.00	—	13.00	11.25
	CK5PA048	44,500	TDR&TXV	12.50	—	—	10.75
	CK5PA060	45,000	TDR&TXV	12.50	—	—	11.05
	CK5PT048	44,500	TDR&TXV	12.50	—	—	10.75
	CK5PT060	45,000	TDR&TXV	12.50	—	—	11.05
	CK5PW048	44,500	TDR&TXV	12.50	—	—	10.75
	CK5PX060	46,000	TDR&TXV	13.00	—	—	11.25
	COILS + 58CV(A,X)155-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	45,000	TDR	12.50	—	12.50	11.00
	CC5A/CD5AC048	44,000	TDR	12.00	—	12.00	10.85
	CC5A/CD5AW048	44,500	TDR	12.50	—	12.50	10.95
	CC5A/CD5AW060	45,000	TDR	12.50	—	12.50	11.20
	CD5AA048	44,500	TDR	12.50	—	12.50	11.00
	CE3AA048	44,500	TDR	12.50	—	12.50	10.90
	CE3AA060	45,000	TDR	12.50	—	12.50	11.20
	CK3BA048	44,500	TDR	12.50	—	12.50	10.95
	CK3BA060	45,000	TDR	12.50	—	12.50	11.20
	CK5A/CK5BA048	44,500	TDR	12.50	—	12.50	10.95
	CK5A/CK5BA060	45,000	TDR	12.50	—	12.50	11.20
	CK5A/CK5BT048	44,500	TDR	12.50	—	12.50	10.95
	CK5A/CK5BT060	45,000	TDR	12.50	—	12.50	11.20
	CK5A/CK5BW048	44,500	TDR	12.50	—	12.50	10.95
	CK5A/CK5BX060	46,000	TDR	13.00	—	13.00	11.35
	CK5PA048	44,500	TDR&TXV	12.50	—	—	10.80
	CK5PA060	45,000	TDR&TXV	12.50	—	—	11.15
	CK5PT048	44,500	TDR&TXV	12.50	—	—	10.80
	CK5PT060	45,000	TDR&TXV	12.50	—	—	11.15
	CK5PW048	44,500	TDR&TXV	12.50	—	—	10.80
	CK5PX060	46,000	TDR&TXV	13.00	—	—	11.35
	COILS + 58MVP080-14 VARIABLE-SPEED FURNACE						
	CD5AA048	44,500	TDR	12.00	—	12.00	10.40
	CK5A/CK5BA048	44,500	TDR	12.00	—	12.00	10.45
	CK5PA048	44,500	TDR&TXV	12.00	—	—	10.45
	COILS + 58MVP080-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AW060	46,000	TDR	12.00	—	12.00	10.55

See notes on pg. 18.

Combination ratings continued

UNIT SIZE-SERIES	INDOOR MODEL	TOT. CAP. BTUH	FACTORY-SUPPLIED ENHANCE-MENT	SEER			EER
				STANDARD RATING	CARRIER GAS FURNACE OR ACCESSORY TDR†	ACCESSORY PURON TXV‡	
	CK3BA048	44,500	TDR	12.00	—	12.00	10.35
	CK5A/CK5BA048	44,500	TDR	12.00	—	12.00	10.35
	CK5A/CK5BA060	45,000	TDR	12.00	—	12.00	10.55
	CK5A/CK5BX060	45,000	TDR	12.00	—	12.00	10.70
	CK5PA048	44,500	TDR&TXV	12.00	—	—	10.35
	CK5PA060	45,000	TDR&TXV	12.00	—	—	10.55
	CK5PX060	45,000	TDR&TXV	12.00	—	—	10.70
	COILS + 58MVP100-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	44,500	TDR	12.00	—	12.00	10.60
	CC5A/CD5AW060	45,500	TDR	12.50	—	12.50	10.85
	CD5AA048	44,500	TDR	12.00	—	12.00	10.40
	CK3BA048	44,500	TDR	12.00	—	12.00	10.65
	CK5A/CK5BA048	44,500	TDR	12.00	—	12.00	10.65
048-30, 50	CK5A/CK5BA060	45,000	TDR	12.00	—	12.00	10.85
	CK5A/CK5BX060	46,000	TDR	12.50	—	12.50	11.05
	CK5PA048	44,500	TDR&TXV	12.00	—	—	10.65
	CK5PA060	45,000	TDR&TXV	12.00	—	—	10.85
	CK5PX060	46,000	TDR&TXV	12.50	—	—	11.05
	COILS + 58MVP120-20 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	44,500	TDR	12.00	—	12.00	10.65
	CC5A/CD5AW048	45,000	TDR	12.00	—	12.00	10.65
	CC5A/CD5AW060	45,500	TDR	12.50	—	12.50	10.90
	CK5A/CK5BA060	45,000	TDR	12.00	—	12.00	10.90
	CK5A/CK5BW048	44,500	TDR	12.00	—	12.00	10.70
	CK5A/CK5BX060	46,000	TDR	12.50	—	12.50	11.05
	CK5PA060	45,000	TDR&TXV	12.00	—	—	10.90
	CK5PW048	44,500	TDR&TXV	12.00	—	—	10.70
	CK5PX060	46,000	TDR&TXV	12.50	—	—	11.05
	*CK5A/CK5BA060	58,000	NONE	—	12.00	12.00	10.35
	CC5A/CD5AA060	55,000	NONE	—	11.50	11.50	10.15
	CC5A/CD5AW060	58,000	NONE	—	12.00	12.00	10.35
	CE3AA060	58,000	NONE	—	12.00	12.00	10.45
	CK3BA060	58,000	NONE	—	12.00	12.00	10.35
	CK5A/CK5BT060	58,000	NONE	—	12.00	12.00	10.35
	CK5A/CK5BX060	58,000	NONE	—	12.00	12.00	10.50
	CK5PA060	58,000	TXV	—	12.00	—	10.35
	CK5PT060	58,000	TXV	—	12.00	—	10.35
	CK5PX060	58,000	TXV	—	12.00	—	10.50
	F(A,B)4BN(F,B,C)060	57,000	TDR	11.50	—	11.50	10.05
	FB4BNB070	58,000	TDR	12.00	—	12.00	10.45
	FC4CN(F,B)060	57,000	TDR&TXV	—	—	11.50	10.05
	FC4CNB070	58,000	TDR&TXV	—	—	12.00	10.45
	FG3AAA060	56,000	NONE	—	11.50	11.50	10.25
	FK4DNB006	58,000	TDR&TXV	12.50	—	—	11.00
	FV4BNB006	58,000	TDR&TXV	12.50	—	—	11.00
	FX4BNB060	58,000	TDR&TXV	12.00	—	—	10.45
	COILS + 58CV(A,X)110-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	56,000	TDR	12.00	—	12.00	10.35
	CD5PX060	58,000	TDR&TXV	12.50	—	—	10.70
	CE3AA060	57,000	TDR	12.00	—	12.00	10.70
	CK3BA060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BA060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BT060	58,000	TDR	12.00	—	12.00	10.60
060-30, 31, 50, 51	CK5A/CK5BX060	58,000	TDR	12.50	—	12.50	10.85
	CK5PA060	58,000	TDR&TXV	12.00	—	—	10.60
	CK5PT060	58,000	TDR&TXV	12.00	—	—	10.60
	CK5PX060	58,000	TDR&TXV	12.50	—	—	10.85
	COILS + 58CV(A,X)135-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	56,000	TDR	12.00	—	12.00	10.30
	CC5A/CD5AW060	58,000	TDR	12.00	—	12.00	10.65
	CE3AA060	57,000	TDR	12.00	—	12.00	10.70
	CK3BA060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BA060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BT060	58,000	TDR	12.00	—	12.00	10.60
	CK5A/CK5BX060	58,000	TDR	12.50	—	12.50	10.85
	CK5PA060	58,000	TDR&TXV	12.00	—	—	10.60
	CK5PT060	58,000	TDR&TXV	12.00	—	—	10.60
	CK5PX060	58,000	TDR&TXV	12.50	—	—	10.85
	COILS + 58CV(A,X)155-22 VARIABLE-SPEED FURNACE						
	CC5A/CD5AA060	56,000	TDR	12.00	—	12.00	10.40
	CC5A/CD5AW060	58,000	TDR	12.00	—	12.00	10.70
	CE3AA060	57,000	TDR	12.00	—	12.00	10.75
	CK3BA060	58,000	TDR	12.00	—	12.00	10.65
	CK5A/CK5BA060	58,000	TDR	12.00	—	12.00	10.65
	CK5A/CK5BT060	58,000	TDR	12.00	—	12.00	10.65
	CK5A/CK5BX060	58,000	TDR	12.50	—	12.50	10.90
	CK5PA060	58,000	TDR&TXV	12.00	—	—	10.65
	CK5PT060	58,000	TDR&TXV	12.00	—	—	10.65
	CK5PX060	58,000	TDR&TXV	12.50	—	—	10.90

See notes on pg. 18.

*Tested Combination

! In most cases, only 1 method should be used to achieve TDR function. Using more than 1 method in a system may cause degradation in performance. Use either the accessory Time-Delay Relay KAATD0101TDR or a furnace equipped with TDR. Most Carrier furnaces are equipped with TDR.

‡ Based on computer simulation. TXV must be hard shutoff type.

** Factory installed R-22 TXV, must be changed to Puron® TXV.

EER — Energy Efficiency Ratio

LLS — Liquid-Line Solenoid Valve

SEER — Seasonal Energy Efficiency Ratio

NOTES: 1. Ratings are net values reflecting the effects of circulating fan motor heat. Supplemental electric heat is not included.

2. Tested outdoor/indoor combinations have been tested in accordance with DOE test procedures for central air conditioners. Ratings for other combinations are determined under DOE computer simulation procedures.

3. Determine actual CFM values obtainable for your system by referring to fan performance data in fan coil or furnace coil literature.

Detailed cooling capacities*

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
38EZG018-30 Outdoor Section With CK5A/CK5BA024 Indoor Section																			
525	72	21.16	10.69	1.66	20.20	10.35	1.78	18.94	9.89	1.89	17.37	9.30	2.00	15.76	8.71	2.11	14.19	8.13	2.23
	67	19.94	13.22	1.64	18.37	12.58	1.74	16.61	11.84	1.86	15.05	11.19	1.96	13.58	10.59	2.05	12.19	10.04	2.16
	62	17.67	15.24	1.62	15.99	14.44	1.71	14.55	13.76	1.79	13.21	13.11	1.88	12.22	12.22	1.99	11.22	11.22	2.11
	57	16.46	16.46	1.60	15.29	15.29	1.69	14.24	14.24	1.79	13.20	13.20	1.88	12.22	12.22	1.99	11.23	11.23	2.11
600	72	21.31	10.95	1.69	20.32	10.61	1.81	19.28	10.33	1.92	17.75	9.79	2.04	16.11	9.21	2.15	14.50	8.64	2.27
	67	20.32	13.87	1.68	18.96	13.44	1.78	17.20	12.74	1.89	15.48	12.04	2.00	13.94	11.43	2.10	12.52	10.86	2.21
	62	18.43	16.48	1.65	16.62	15.65	1.76	15.11	14.90	1.84	13.97	13.97	1.94	12.90	12.90	2.05	11.84	11.84	2.18
	57	17.57	17.57	1.64	16.26	16.26	1.75	15.07	15.07	1.84	13.97	13.97	1.94	12.90	12.90	2.06	11.84	11.84	2.18
675	72	21.40	11.15	1.73	20.41	10.86	1.84	19.47	10.68	1.96	17.98	10.20	2.07	16.33	9.64	2.18	14.71	9.08	2.30
	67	20.53	14.40	1.71	19.36	14.14	1.82	17.61	13.52	1.92	15.85	12.84	2.03	14.25	12.21	2.15	12.76	11.63	2.26
	62	19.03	17.56	1.68	17.25	16.79	1.79	15.79	15.79	1.90	14.63	14.63	2.01	13.47	13.47	2.11	12.38	12.38	2.24
	57	18.53	18.53	1.68	17.13	17.13	1.79	15.79	15.79	1.90	14.63	14.63	2.01	13.47	13.47	2.11	12.38	12.38	2.24

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling	
		Capacity	Power
CC5A/CD5AA	018	0.99	1.04
	024	1.00	1.05
CC5A/CD5AW	024	1.00	1.01
CE3AA	024	1.00	1.01
CF5AA	024	1.00	1.01
CK3BA	024	1.00	1.00
CK5A/CK5BA	018	0.99	1.02
	024	1.00	1.00
CK5A/CK5BW	024	1.00	1.00
CK5PA	018	0.99	1.02
	024	1.00	1.00
CK5PW	024	1.00	1.00
F(A,B)4BN(F,C)	018	0.99	1.02
	024	1.01	1.01
FC4CNF	024	1.01	1.01
FF1DNA	018	0.99	1.00
	024	1.00	1.00
FG3AAA	024	1.00	1.03
FK4DNF	001	1.02	0.92
	002	1.03	0.92
	—	—	—

Indoor Section	Size	Cooling	
		Capacity	Power
FV4BNF	002	1.03	0.92
FX4BNF	018	1.01	1.01
COILS + 58CV(A,X)070-12 VARIABLE SPEED FURNACE			
CC5A/CD5AA	018	0.99	0.95
	024	1.00	0.93
CC5A/CD5AW	024	1.00	0.93
CE3AA	024	1.00	0.93
CK3BA	024	1.00	0.92
CK5A/CK5BA	018	0.99	0.93
	024	1.00	0.92
CK5A/CK5BW	024	1.00	0.92
CK5PA	018	0.99	0.93
	024	1.00	0.92
CK5PW	024	1.00	0.92
COILS + 58MVP060-14 VARIABLE SPEED FURNACE			
CC5A/CD5AW	024	1.00	0.93
CE3AA	024	1.00	0.93
CK5A/CK5BW	024	1.00	0.92
CK5PW	024	1.00	0.92
COILS + 58MVP080-14 VARIABLE SPEED FURNACE			
CC5A/CD5AW	024	1.00	0.93

See notes on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
38EZG024-30 Outdoor Section With CK5A/CK5BA030 Indoor Section																			
700	72	26.7	13.0	1.84	25.7	12.6	2.06	24.6	12.2	2.29	23.3	11.8	2.56	22.0	11.3	2.85	20.4	10.8	3.17
	67	25.2	16.7	1.83	24.1	16.3	2.04	22.8	15.8	2.27	21.5	15.2	2.53	19.9	14.6	2.80	17.3	13.6	3.08
	63††	22.4	15.9	1.80	20.9	15.2	1.99	19.3	14.4	2.21	18.3	14.0	2.46	17.3	13.6	2.74	15.3	12.8	3.02
	62	21.9	19.5	1.79	20.4	18.8	1.99	18.9	18.1	2.21	18.0	17.7	2.46	17.1	17.1	2.73	15.7	15.7	3.03
	57	20.6	20.6	1.77	19.3	19.3	1.97	18.6	18.6	2.20	17.9	17.9	2.45	17.0	17.0	2.73	15.9	15.9	3.04
800	72	26.9	13.3	1.88	26.0	13.0	2.09	24.9	12.6	2.33	23.8	12.3	2.60	22.3	11.8	2.89	20.7	11.4	3.21
	67	25.4	17.4	1.86	24.3	17.1	2.08	23.2	16.7	2.31	21.9	16.2	2.57	20.2	15.6	2.84	17.6	14.6	3.12
	63††	23.7	17.1	1.85	22.1	16.4	2.05	20.4	15.7	2.27	19.5	15.3	2.52	17.9	14.6	2.79	15.8	13.8	3.07
	62	23.2	21.3	1.84	21.7	20.6	2.04	20.2	19.8	2.26	19.3	19.3	2.52	18.5	18.5	2.80	16.6	16.6	3.09
	57	22.1	22.1	1.83	20.8	20.8	2.03	20.0	20.0	2.26	19.2	19.2	2.52	18.4	18.4	2.80	16.6	16.6	3.09
900	72	27.5	13.8	1.92	26.4	13.5	2.14	25.3	13.2	2.38	23.9	12.7	2.64	22.5	12.3	2.93	20.9	11.9	3.26
	67	25.6	18.1	1.90	24.4	17.7	2.11	23.4	17.4	2.35	22.1	17.1	2.61	20.5	16.5	2.89	18.0	15.6	3.17
	63††	24.4	18.1	1.89	23.1	17.6	2.10	21.5	16.9	2.32	20.5	16.5	2.58	18.3	15.6	2.83	16.3	14.8	3.12
	62	24.1	22.8	1.89	22.8	22.2	2.10	21.4	21.4	2.32	20.6	20.6	2.58	19.0	19.0	2.85	17.3	17.3	3.15
	57	23.4	23.4	1.88	22.0	22.0	2.08	21.3	21.3	2.32	20.4	20.4	2.58	19.0	19.0	2.85	17.1	17.1	3.15

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CC5A/CD5AA	024	1.00	1.02	CC5A/CD5AW	024	1.00	0.94
	030	1.00	1.01		030	1.03	0.95
CC5A/CD5AW	024	1.00	1.02	CE3AA	024	1.00	0.93
	030	1.00	1.01		030	1.01	0.93
CE3AA	024	1.00	1.01	CK3BA	024	1.00	0.93
	030	1.00	1.00		030	1.03	0.94
CF5AA	024	1.00	1.01	CK5A/CK5BA	024	1.00	0.93
CK3BA	024	1.00	1.00		030	1.03	0.94
	030	1.00	1.00	CK5A/CK5BW	024	1.00	0.93
CK5A/CK5BA	024	1.00	1.00		030	1.03	0.94
	030	1.00	1.00	CK5PA	024	1.00	0.93
CK5A/CK5BW	024	1.00	1.00		030	1.03	0.94
	030	1.00	1.00	CK5PW	024	1.00	0.93
CK5PA	024	1.00	1.00		030	1.03	0.94
	030	1.00	1.00	COILS + 58MVP040-14 VARIABLE SPEED FURNACE			
CK5PW	024	1.00	1.00	CC5A/CD5AW	030	1.01	0.94
	030	1.00	1.00	CK5A/CK5BW	030	1.01	0.94
F(A,B)4BN(F,C)	024	1.01	1.00	CK5PW	030	1.01	0.94
	030	1.03	1.01	COILS + 58MVP060-14 VARIABLE SPEED FURNACE			
FC4CNF	024	1.01	1.01	CC5A/CD5AW	024	1.00	0.95
	030	1.03	1.02		030	1.01	0.94
FF1DNA	024	1.00	1.01	CK3BA	024	1.00	0.93
	030	1.03	1.02		030	1.01	0.94
FG3AAA	024	0.99	1.02	CK5A/CK5BW	024	1.00	0.93
FK4DNF	001	1.02	0.93		030	1.01	0.94
	002	1.03	0.93	CK5PW	024	1.00	0.93
	003	1.03	0.91		030	1.01	0.94
FV4BNF	002	1.03	0.93	COILS + 58MVP080-14 VARIABLE SPEED FURNACE			
	003	1.03	0.91	CC5A/CD5AW	024	1.00	0.93
FX4BNF	030	1.03	1.01		030	1.01	0.93
COILS + 58CV(A,X)070-12 VARIABLE SPEED FURNACE				CK5A/CK5BW	024	1.00	0.92
CC5A/CD5AA	024	1.00	0.94		030	1.01	0.92
	030	1.03	0.95	CK5PW	024	1.00	0.92
	—	—	—		030	1.01	0.92

See notes on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
38EZG030-30, 50 Outdoor Section With CK5A/CK5BA036 Indoor Section																			
875	72	33.8	16.9	2.24	32.6	16.5	2.49	31.2	16.0	2.76	29.5	15.5	3.07	27.7	14.9	3.41	25.3	14.1	3.78
	67	31.7	22.1	2.22	30.3	21.6	2.46	28.8	21.0	2.73	27.0	20.3	3.03	24.4	19.3	3.34	21.4	18.1	3.68
	63††	29.1	21.3	2.19	27.1	20.5	2.42	25.0	19.6	2.67	22.8	18.6	2.95	20.4	17.6	3.26	18.9	17.0	3.62
	62	28.5	26.6	2.18	26.6	25.6	2.41	24.7	24.6	2.66	22.8	22.8	2.95	21.8	21.8	3.28	20.3	20.3	3.65
	57	27.1	27.1	2.17	25.4	25.4	2.39	24.5	24.5	2.66	23.5	23.5	2.96	22.4	22.4	3.30	20.3	20.3	3.65
1000	72	34.1	17.4	2.30	33.0	17.2	2.54	31.6	16.8	2.82	29.9	16.3	3.12	28.0	15.7	3.47	25.5	14.9	3.84
	67	32.1	23.2	2.27	30.8	22.9	2.52	29.0	22.2	2.78	27.4	21.7	3.08	24.7	20.7	3.40	21.7	19.5	3.74
	63††	30.2	23.0	2.25	28.2	22.1	2.48	26.0	21.2	2.74	23.7	20.2	3.02	21.3	19.2	3.32	19.5	18.5	3.68
	62	30.0	28.9	2.25	28.1	27.9	2.48	26.3	26.3	2.74	24.6	24.6	3.03	23.4	23.4	3.37	21.0	21.0	3.72
	57	29.1	29.1	2.24	27.3	27.3	2.47	26.4	26.4	2.74	25.3	25.3	3.05	23.3	23.3	3.37	21.0	21.0	3.72
1125	72	34.3	18.0	2.35	33.3	17.8	2.60	31.8	17.4	2.87	30.2	17.0	3.18	28.2	16.4	3.52	25.8	15.7	3.90
	67	32.4	24.4	2.32	31.0	24.0	2.56	29.3	23.5	2.83	27.7	23.0	3.14	25.2	22.1	3.46	21.9	20.8	3.80
	63††	30.6	24.3	2.31	29.0	23.6	2.54	26.9	22.7	2.80	24.5	21.7	3.08	22.2	20.7	3.39	19.9	19.6	3.74
	62	30.7	30.6	2.31	29.4	29.4	2.55	27.7	27.7	2.81	26.1	26.1	3.11	24.4	24.4	3.44	21.6	21.6	3.79
	57	30.7	30.7	2.31	29.0	29.0	2.54	28.0	28.0	2.82	26.5	26.5	3.12	24.1	24.1	3.43	21.7	21.7	3.79

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling	
		Capacity	Power
CC5A/CD5AA	030	0.97	1.00
	036	1.00	1.00
CC5A/CD5AW	030	0.97	1.00
	036	1.00	1.00
CE3AA	030	0.97	0.98
	036	0.97	0.99
CF5AA	036	0.99	1.00
CK3BA	030	0.97	0.99
	036	1.00	1.00
CK5A/CK5BA	030	0.97	0.96
	036	1.00	1.00
CK5A/CK5BT	036	1.00	1.00
CK5A/CK5BW	030	0.97	0.99
	036	1.00	1.00
CK5PA	030	0.97	0.96
	036	1.00	1.00
CK5PT	036	1.00	1.00
CK5PW	030	0.97	0.99
	036	1.00	1.00
F(A,B)4BN(F,C)	030	0.96	0.97
	036	0.97	0.99
FC4CNF	030	0.96	0.98
	036	0.97	1.00
FF1DNA	030	0.98	1.01
FG3AAA	036	0.98	1.00
FK4DNF	001	1.00	1.05
	002	0.98	0.91
	003	0.98	0.89
	005	1.01	0.89
FV4BNF	002	0.98	0.91
	003	0.99	0.90
	005	1.01	0.89
FX4BNF	030	0.96	0.96
	036	0.97	0.99
COILS + 58CV(A,X)070-12 VARIABLE SPEED FURNACE			
CC5A/CD5AA	030	0.97	0.93
	036	1.00	0.93
CC5A/CD5AW	030	0.97	0.93
	—	—	—

Indoor Section	Size	Cooling	
		Capacity	Power
CE3AA	030	0.97	0.92
	036	0.99	0.93
CK3BA	030	0.97	0.92
	036	1.00	0.92
CK5A/CK5BA	030	0.97	0.92
	036	1.00	0.92
CK5A/CK5BT	036	1.00	0.92
CK5A/CK5BW	030	0.97	0.92
CK5PA	030	0.97	0.92
	036	1.00	0.92
CK5PT	036	1.00	0.92
CK5PW	030	0.97	0.92
COILS + 58CV(A,X)090-16 VARIABLE SPEED FURNACE			
CC5A/CD5AA	030	0.97	0.91
	036	1.00	0.92
CC5A/CD5AW	030	0.97	0.91
	036	1.00	0.92
CE3AA	030	0.97	0.90
	036	0.99	0.91
CK3BA	030	0.97	0.91
	036	1.00	0.91
CK5A/CK5BA	030	0.97	0.91
	036	1.00	0.91
CK5A/CK5BW	030	0.97	0.91
	036	1.00	0.91
CK5PA	030	0.97	0.91
	036	1.00	0.91
CK5PT	036	1.00	0.91
CK5PW	030	0.97	0.91
	036	1.00	0.91
COILS + 58MVP040-14 VARIABLE SPEED FURNACE			
CC5A/CD5AW	030	0.97	0.95
	036	1.00	0.95
CK5A/CK5BW	030	0.96	0.94
	036	1.00	0.94
CK5PW	030	0.96	0.94
	036	1.00	0.94
COILS + 58MVP060-14 VARIABLE SPEED FURNACE			
CC5A/CD5AA	036	1.00	0.95
CC5A/CD5AW	030	0.97	0.95

See notes on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
38EZG030-30, 50 Outdoor Section With CK5A/CK5BA036 Indoor Section Continued																			
875	72	33.8	16.9	2.24	32.6	16.5	2.49	31.2	16.0	2.76	29.5	15.5	3.07	27.7	14.9	3.41	25.3	14.1	3.78
	67	31.7	22.1	2.22	30.3	21.6	2.46	28.8	21.0	2.73	27.0	20.3	3.03	24.4	19.3	3.34	21.4	18.1	3.68
	63††	29.1	21.3	2.19	27.1	20.5	2.42	25.0	19.6	2.67	22.8	18.6	2.95	20.4	17.6	3.26	18.9	17.0	3.62
	62	28.5	26.6	2.18	26.6	25.6	2.41	24.7	24.6	2.66	22.8	22.8	2.95	21.8	21.8	3.28	20.3	20.3	3.65
	57	27.1	27.1	2.17	25.4	25.4	2.39	24.5	24.5	2.66	23.5	23.5	2.96	22.4	22.4	3.30	20.3	20.3	3.65
1000	72	34.1	17.4	2.30	33.0	17.2	2.54	31.6	16.8	2.82	29.9	16.3	3.12	28.0	15.7	3.47	25.5	14.9	3.84
	67	32.1	23.2	2.27	30.8	22.9	2.52	29.0	22.2	2.78	27.4	21.7	3.08	24.7	20.7	3.40	21.7	19.5	3.74
	63††	30.2	23.0	2.25	28.2	22.1	2.48	26.0	21.2	2.74	23.7	20.2	3.02	21.3	19.2	3.32	19.5	18.5	3.68
	62	30.0	28.9	2.25	28.1	27.9	2.48	26.3	26.3	2.74	24.6	24.6	3.03	23.4	23.4	3.37	21.0	21.0	3.72
	57	29.1	29.1	2.24	27.3	27.3	2.47	26.4	26.4	2.74	25.3	25.3	3.05	23.3	23.3	3.37	21.0	21.0	3.72
1125	72	34.3	18.0	2.35	33.3	17.8	2.60	31.8	17.4	2.87	30.2	17.0	3.18	28.2	16.4	3.52	25.8	15.7	3.90
	67	32.4	24.4	2.32	31.0	24.0	2.56	29.3	23.5	2.83	27.7	23.0	3.14	25.2	22.1	3.46	21.9	20.8	3.80
	63††	30.6	24.3	2.31	29.0	23.6	2.54	26.9	22.7	2.80	24.5	21.7	3.08	22.2	20.7	3.39	19.9	19.6	3.74
	62	30.7	30.6	2.31	29.4	29.4	2.55	27.7	27.7	2.81	26.1	26.1	3.11	24.4	24.4	3.44	21.6	21.6	3.79
	57	30.7	30.7	2.31	29.0	29.0	2.54	28.0	28.0	2.82	26.5	26.5	3.12	24.1	24.1	3.43	21.7	21.7	3.79

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CK3BA	030	0.97	0.95	CK5A/CK5BW	030	0.97	0.95
	036	1.00	0.94		036	1.00	0.95
CK5A/CK5BA	036	1.00	0.94	CK5PW	030	0.97	0.95
CK5A/CK5BW	030	0.97	0.95		036	1.00	0.95
CK5PA	036	1.00	0.94	COILS + 58MVP100-20 VARIABLE SPEED FURNACE			
CK5PW	030	0.97	0.95	CC5A/CD5AW	030	0.97	0.92
COILS + 58MVP080-14 VARIABLE SPEED FURNACE					036	1.00	0.92
CC5A/CD5AW	030	0.97	0.94	CK5A/CK5BW	030	0.97	0.92
	036	1.00	0.94		036	1.00	0.92
CK5A/CK5BW	030	0.97	0.94	CK5PW	030	0.97	0.92
	036	1.00	0.93		036	1.00	0.92
CK5PW	030	0.97	0.94	COILS + 58MVP120-20 VARIABLE SPEED FURNACE			
	036	1.00	0.93	CC5A/CD5AW	036	1.00	0.92
COILS + 58MVP080-20 VARIABLE SPEED FURNACE				CK5A/CK5BW	036	1.00	0.92
CC5A/CD5AW	030	0.97	0.96	CK5PW	036	1.00	0.92
	036	1.00	0.95		—	—	—

See note s on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
38EZG036-30, 31, 50 Outdoor Section With CK5A/CK5BA042 Indoor Section																			
1050	72	40.6	20.1	2.70	39.1	19.6	3.00	37.3	19.0	3.33	35.3	18.3	3.70	33.0	17.6	4.08	30.5	16.8	4.52
	67	38.2	26.3	2.68	36.3	25.5	2.98	34.5	24.8	3.30	32.4	24.0	3.66	30.2	23.2	4.04	26.5	21.9	4.43
	63††	35.9	25.8	2.67	34.1	25.1	2.96	32.0	24.1	3.27	29.6	23.1	3.62	26.8	21.9	3.97	23.4	20.5	4.35
	62	35.4	32.2	2.67	32.6	30.8	2.94	29.7	29.4	3.24	28.2	28.2	3.59	26.8	26.8	3.98	24.9	24.9	4.39
	57	33.6	33.6	2.64	31.7	31.7	2.92	29.6	29.6	3.23	28.3	28.3	3.59	26.9	26.9	3.98	24.6	24.6	4.38
1200	72	41.1	20.8	2.76	39.6	20.3	3.06	37.8	19.8	3.40	35.7	19.2	3.76	33.4	18.4	4.15	30.8	17.7	4.59
	67	38.9	27.8	2.75	36.9	27.0	3.04	35.0	26.4	3.37	32.9	25.6	3.72	30.6	24.9	4.11	26.9	23.5	4.50
	63††	36.6	27.4	2.73	34.7	26.6	3.02	32.5	25.7	3.34	30.1	24.7	3.68	27.2	23.5	4.04	23.7	22.0	4.42
	62	36.2	34.5	2.73	33.4	33.0	3.00	31.7	31.7	3.32	30.2	30.2	3.68	28.7	28.7	4.07	25.9	25.9	4.47
	57	35.0	35.0	2.71	33.9	33.9	3.01	31.8	31.8	3.32	30.5	30.5	3.69	29.0	29.0	4.08	25.9	25.9	4.47
1350	72	41.4	21.4	2.82	39.9	21.0	3.13	38.1	20.5	3.46	36.0	19.9	3.82	33.7	19.2	4.22	31.0	18.6	4.65
	67	39.1	29.0	2.80	37.4	28.5	3.10	35.4	27.8	3.43	33.3	27.1	3.78	31.0	26.5	4.18	27.5	25.1	4.58
	63††	37.0	28.8	2.79	35.2	28.1	3.08	32.9	27.1	3.40	30.4	26.1	3.74	27.5	24.9	4.11	24.1	23.4	4.49
	62	37.0	36.5	2.79	35.4	35.4	3.09	33.6	33.6	3.41	31.8	31.8	3.76	29.8	29.8	4.16	26.7	26.7	4.56
	57	36.9	36.9	2.79	35.4	35.4	3.09	33.7	33.7	3.41	31.8	31.8	3.76	29.8	29.8	4.16	27.0	27.0	4.56

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling	
		Capacity	Power
CC5A/CD5AA	036	1.00	1.00
	042	1.00	1.00
CC5A/CD5AW	036	1.00	1.00
	042	0.99	1.00
CE3AA	036	0.99	1.00
	042	1.00	1.00
CF5AA	036	0.99	1.00
CK3BA	036	1.00	1.00
	042	1.00	1.00
CK5A/CK5BA	036	1.00	1.00
	042	1.00	1.00
CK5A/CK5BE	042	1.01	1.00
CK5A/CK5BT	036	1.00	1.00
	042	1.00	1.00
CK5A/CK5BW	036	1.00	1.00
CK5PA	036	1.00	1.00
CK5PE	042	1.01	1.00
CK5PT	036	1.00	1.00
	042	1.00	1.00
CK5PW	036	1.00	1.00
F(A,B)4BN(F,B,C)	042	1.00	1.01
F(A,B)4BN(F,C)	036	0.97	1.00
FC4CN(F,B)	042	1.00	1.01
FC4CNF	036	1.00	1.03
FG3AAA	036	0.97	1.00
FK4DNB	006	1.01	0.88
FK4DNF	001	0.97	0.93
	002	0.97	0.93
	003	0.98	0.90
	005	1.00	0.89
FV4BNB	006	1.02	0.89
FV4BNF	002	0.97	0.93
	003	0.98	0.90
	005	1.00	0.89
FX4BNF	036	0.97	1.00
	042	0.97	0.96
COILS + 58CV(A,X)070-12 VARIABLE SPEED FURNACE			
CC5A/CD5AA	036	0.99	0.94
CE3AA	036	0.99	0.95
	042	0.99	0.93
—	—	—	—

Indoor Section	Size	Cooling	
		Capacity	Power
CK3BA	036	0.99	0.94
CK5A/CK5BA	036	0.99	0.94
CK5A/CK5BE	042	0.99	0.93
CK5A/CK5BT	036	0.99	0.94
CK5PA	036	0.99	0.94
CK5PE	042	0.99	0.93
CK5PT	036	0.99	0.94
COILS + 58CV(A,X)090-16 VARIABLE SPEED FURNACE			
CC5A/CD5AA	036	0.99	0.92
	042	0.99	0.91
CC5A/CD5AW	036	0.99	0.92
CE3AA	036	0.99	0.93
	042	0.99	0.91
CK3BA	036	0.99	0.92
	042	0.99	0.91
CK5A/CK5BA	036	0.99	0.92
	042	0.99	0.91
CK5A/CK5BE	042	0.99	0.91
CK5A/CK5BT	036	0.99	0.92
	042	0.99	0.91
CK5A/CK5BW	036	0.99	0.92
CK5PA	036	0.99	0.92
	042	0.99	0.92
CK5PE	042	0.99	0.91
CK5PT	036	0.99	0.92
	042	0.99	0.92
CK5PW	036	0.99	0.92
COILS + 58CV(A,X)110-22 VARIABLE SPEED FURNACE			
CC5A/CD5AA	036	0.99	0.92
	042	0.99	0.91
CC5A/CD5AW	036	0.99	0.92
	042	0.99	0.91
CE3AA	036	0.99	0.93
	042	0.99	0.91
CK3BA	036	0.99	0.91
	042	0.99	0.91
CK5A/CK5BA	036	0.99	0.91
	042	0.99	0.91
CK5A/CK5BT	036	0.99	0.91
	042	0.99	0.91
CK5A/CK5BW	036	0.99	0.91

See notes on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
CFM	EWB	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**
38EZG036-30, 31, 50 Outdoor Section With CK5A/CK5BA042 Indoor Section Continued																			
1050	72	40.6	20.1	2.70	39.1	19.6	3.00	37.3	19.0	3.33	35.3	18.3	3.70	33.0	17.6	4.08	30.5	16.8	4.52
	67	38.2	26.3	2.68	36.3	25.5	2.98	34.5	24.8	3.30	32.4	24.0	3.66	30.2	23.2	4.04	26.5	21.9	4.43
	63††	35.9	25.8	2.67	34.1	25.1	2.96	32.0	24.1	3.27	29.6	23.1	3.62	26.8	21.9	3.97	23.4	20.5	4.35
	62	35.4	32.2	2.67	32.6	30.8	2.94	29.7	29.4	3.24	28.2	28.2	3.59	26.8	26.8	3.98	24.9	24.9	4.39
	57	33.6	33.6	2.64	31.7	31.7	2.92	29.6	29.6	3.23	28.3	28.3	3.59	26.9	26.9	3.98	24.6	24.6	4.38
1200	72	41.1	20.8	2.76	39.6	20.3	3.06	37.8	19.8	3.40	35.7	19.2	3.76	33.4	18.4	4.15	30.8	17.7	4.59
	67	38.9	27.8	2.75	36.9	27.0	3.04	35.0	26.4	3.37	32.9	25.6	3.72	30.6	24.9	4.11	26.9	23.5	4.50
	63††	36.6	27.4	2.73	34.7	26.6	3.02	32.5	25.7	3.34	30.1	24.7	3.68	27.2	23.5	4.04	23.7	22.0	4.42
	62	36.2	34.5	2.73	33.4	33.0	3.00	31.7	31.7	3.32	30.2	30.2	3.68	28.7	28.7	4.07	25.9	25.9	4.47
	57	35.0	35.0	2.71	33.9	33.9	3.01	31.8	31.8	3.32	30.5	30.5	3.69	29.0	29.0	4.08	25.9	25.9	4.47
1350	72	41.4	21.4	2.82	39.9	21.0	3.13	38.1	20.5	3.46	36.0	19.9	3.82	33.7	19.2	4.22	31.0	18.6	4.65
	67	39.1	29.0	2.80	37.4	28.5	3.10	35.4	27.8	3.43	33.3	27.1	3.78	31.0	26.5	4.18	27.5	25.1	4.58
	63††	37.0	28.8	2.79	35.2	28.1	3.08	32.9	27.1	3.40	30.4	26.1	3.74	27.5	24.9	4.11	24.1	23.4	4.49
	62	37.0	36.5	2.79	35.4	35.4	3.09	33.6	33.6	3.41	31.8	31.8	3.76	29.8	29.8	4.16	26.7	26.7	4.56
	57	36.9	36.9	2.79	35.4	35.4	3.09	33.7	33.7	3.41	31.8	31.8	3.76	29.8	29.8	4.16	27.0	27.0	4.56

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling Capacity	Cooling Power
CK5PA	036	0.99	0.91
	042	0.99	0.91
CK5PT	036	0.99	0.91
	042	0.99	0.91
CK5PW	036	0.99	0.91
COILS + 58CV(A,X)135-22 VARIABLE SPEED FURNACE			
CC5A/CD5AA	042	0.99	0.91
CC5A/CD5AW	036	0.99	0.92
	042	0.99	0.91
CE3AA	036	0.99	0.93
	042	0.99	0.91
CK3BA	042	0.99	0.91
CK5A/CK5BA	042	0.99	0.91
CK5A/CK5BT	042	0.99	0.91
CK5A/CK5BW	036	0.99	0.92
CK5PA	042	0.99	0.91
CK5PT	042	0.99	0.91
CK5PW	036	0.99	0.92
COILS + 58CV(A,X)155-22 VARIABLE SPEED FURNACE			
CC5A/CD5AA	042	0.99	0.90
CC5A/CD5AW	036	0.99	0.92
	042	0.99	0.91
CE3AA	036	0.99	0.93
	042	0.99	0.90
CK3BA	042	0.99	0.91
CK5A/CK5BA	042	0.99	0.91
CK5A/CK5BT	042	0.99	0.91
CK5A/CK5BW	036	0.99	0.91
CK5PA	042	0.99	0.91
CK5PT	042	0.99	0.91
CK5PW	036	0.99	0.91
COILS + 58MVP060-14 VARIABLE SPEED FURNACE			
CC5A/CD5AA	036	0.99	0.97
CK3BA	036	0.99	0.97
CK5A/CK5BA	036	0.99	0.97
CK5A/CK5BT	036	0.99	0.97
CK5PA	036	0.99	0.97
CK5PT	036	0.99	0.97
COILS + 58MVP080-14 VARIABLE SPEED FURNACE			
CC5A/CD5AA	042	0.99	0.94
	—	—	—

Indoor Section	Size	Cooling Capacity	Cooling Power
CC5A/CD5AW	036	0.99	0.95
	042	0.99	0.94
CK5A/CK5BA	042	0.99	0.94
CK5A/CK5BE	042	0.99	0.92
CK5A/CK5BT	042	0.99	0.94
CK5A/CK5BW	036	0.99	0.96
CK5PA	042	0.99	0.94
CK5PE	042	0.99	0.92
CK5PT	042	0.99	0.94
CK5PW	036	0.99	0.96
COILS + 58MVP060-20 VARIABLE SPEED FURNACE			
CC5A/CD5AA	042	0.99	0.93
CC5A/CD5AW	036	0.99	0.94
	042	0.99	0.94
CK5A/CK5BA	042	0.99	0.96
CK5A/CK5BT	042	0.99	0.96
CK5A/CK5BW	036	0.99	0.97
CK5PA	042	0.99	0.96
CK5PT	042	0.99	0.96
CK5PW	036	0.99	0.97
COILS + 58MVP100-20 VARIABLE SPEED FURNACE			
CC5A/CD5AA	042	0.99	0.93
CC5A/CD5AW	036	0.99	0.94
	042	0.99	0.94
CK5A/CK5BA	042	0.99	0.93
CK5A/CK5BE	042	0.99	0.91
CK5A/CK5BT	042	0.99	0.93
CK5A/CK5BW	036	0.99	0.94
CK5PA	042	0.99	0.93
CK5PE	042	0.99	0.91
CK5PT	042	0.99	0.93
CK5PW	036	0.99	0.94
COILS + 58MVP120-20 VARIABLE SPEED FURNACE			
CC5A/CD5AA	042	0.99	0.93
CC5A/CD5AW	036	0.99	0.94
CK5A/CK5BA	042	0.99	0.93
CK5A/CK5BT	042	0.99	0.93
CK5A/CK5BW	036	0.99	0.94
CK5PA	042	0.99	0.93
CK5PT	042	0.99	0.93
CK5PW	036	0.99	0.94

See notes on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
		Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**
CFM	EWB	Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
38EZG042-30, 50 Outdoor Section With CK5A/CK5BA048 Indoor Section																			
1225	72	46.5	23.0	3.09	45.1	22.7	3.44	43.0	21.9	3.81	40.7	21.2	4.23	38.1	20.3	4.69	35.2	19.4	5.20
	67	44.0	30.4	3.06	41.9	29.6	3.39	39.6	28.6	3.77	37.3	27.7	4.17	34.4	26.6	4.61	30.2	25.0	5.09
	63††	38.6	28.5	2.98	35.8	27.3	3.29	33.1	26.2	3.64	31.8	25.6	4.06	30.2	25.0	4.53	26.6	23.5	4.99
	62	38.1	35.8	2.97	35.4	34.4	3.29	33.1	33.1	3.64	32.0	32.0	4.07	30.7	30.7	4.54	28.1	28.1	5.03
	57	37.3	37.3	2.96	35.1	35.1	3.28	33.8	33.8	3.65	32.4	32.4	4.08	30.8	30.8	4.54	28.1	28.1	5.03
1400	72	47.1	23.9	3.16	45.3	23.3	3.50	43.2	22.7	3.88	41.0	22.0	4.30	38.4	21.2	4.75	35.6	20.4	5.29
	67	44.5	32.0	3.13	42.2	31.0	3.46	40.0	30.2	3.83	37.8	29.5	4.24	35.2	28.6	4.70	30.9	27.0	5.18
	63††	39.7	30.5	3.07	36.8	29.3	3.38	34.4	28.3	3.74	33.1	27.7	4.16	31.2	26.9	4.61	27.6	25.4	5.08
	62	39.2	38.4	3.06	37.7	37.5	3.39	35.5	35.5	3.76	34.4	34.4	4.19	32.8	32.8	4.64	29.8	29.8	5.14
	57	38.9	38.9	3.05	37.6	37.6	3.39	36.2	36.2	3.77	34.8	34.8	4.20	32.4	32.4	4.64	29.6	29.6	5.14
1575	72	47.6	24.7	3.24	45.9	24.3	3.59	43.7	23.7	3.96	41.4	23.0	4.38	38.7	22.2	4.84	35.8	21.4	5.38
	67	44.9	33.4	3.20	42.5	32.5	3.53	40.4	31.9	3.90	38.1	31.1	4.31	35.6	30.4	4.78	31.6	28.8	5.26
	63††	41.0	32.5	3.15	39.1	31.7	3.48	35.9	30.4	3.83	34.2	29.7	4.25	32.0	28.7	4.70	28.0	27.0	5.17
	62	41.5	41.3	3.16	39.9	39.9	3.50	37.6	37.6	3.87	36.5	36.5	4.29	34.0	34.0	4.74	31.0	31.0	5.24
	57	41.3	41.3	3.16	39.8	39.8	3.49	38.4	38.4	3.88	36.5	36.5	4.29	33.8	33.8	4.74	30.9	30.9	5.24

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CC5A/CD5AA	042	0.99	1.00	CE3AA	042	0.98	0.92
CC5A/CD5AC	048	0.99	1.00		048	0.99	0.93
CC5A/CD5AW	042	0.99	1.00	CK3BA	042	0.98	0.92
	048	1.00	1.00		048	0.99	0.92
CD5AA	048	1.00	1.00	CK5A/CK5BA	042	0.98	0.92
CE3AA	042	0.99	0.99		048	0.99	0.92
	048	1.00	1.00	CK5A/CK5BE	042	0.98	0.91
CF5AA	048	0.99	0.99	CK5A/CK5BT	042	0.98	0.92
CK3BA	042	0.99	0.99		048	0.99	0.92
	048	1.00	1.00	CK5PA	042	0.98	0.92
CK5A/CK5BA	042	0.99	0.99		048	0.99	0.92
	048	1.00	1.00	CK5PE	042	0.98	0.92
CK5A/CK5BE	042	0.99	0.99	CK5PT	042	0.98	0.92
CK5A/CK5BT	042	0.99	0.99		048	0.99	0.92
	048	1.00	1.00	**COILS + 58CV(A,X)110-22 VARIABLE SPEED FURNACE**			
CK5A/CK5BW	048	1.00	1.00	CC5A/CD5AA	042	0.98	0.91
CK5PA	042	0.99	0.99	CC5A/CD5AC	048	0.98	0.91
	048	1.00	1.00	CC5A/CD5AW	042	0.98	0.92
CK5PE	042	0.99	0.99		048	0.99	0.91
CK5PT	042	0.99	0.99	CD5AA	048	0.99	0.91
	048	1.00	1.00	CE3AA	042	0.98	0.91
CK5PW	048	1.00	1.00		048	0.99	0.92
F(A,B)4BN(F,B,C)	042	0.99	1.01	CK3BA	042	0.98	0.91
	048	1.00	1.00		048	0.99	0.91
FC4CN(F,B)	042	0.98	1.01	CK5A/CK5BA	042	0.98	0.91
	048	0.99	1.01		048	0.99	0.91
FC4CNB	054	1.01	0.98	CK5A/CK5BT	042	0.98	0.91
FG3AAA	048	1.00	1.00		048	0.99	0.91
FK4DNB	006	1.01	0.90	CK5A/CK5BW	048	0.99	0.91
FK4DNF	003	0.96	0.91	CK5PA	042	0.98	0.91
	005	1.00	0.91		048	0.99	0.91
FV4BNB	006	1.01	0.90	CK5PT	042	0.98	0.91
FV4BNF	003	0.96	0.91		048	0.99	0.91
	005	1.01	0.92	CK5PW	048	0.99	0.91
FX4BNF	042	0.96	0.98	**COILS + 58CV(A,X)135-22 VARIABLE SPEED FURNACE**			
	048	0.99	0.99	CC5A/CD5AA	042	0.98	0.91
COILS + 58CV(A,X)090-16 VARIABLE SPEED FURNACE				CC5A/CD5AC	048	0.98	0.91
CC5A/CD5AA	042	0.98	0.92	CC5A/CD5AW	042	0.98	0.92
CC5A/CD5AC	048	0.98	0.92		048	0.99	0.91
CD5AA	048	0.99	0.92	CD5AA	048	0.99	0.91

See notes on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
38EZG042-30, 50 Outdoor Section With CK5A/CK5BA048 Indoor Section Continued																			
1225	72	46.5	23.0	3.09	45.1	22.7	3.44	43.0	21.9	3.81	40.7	21.2	4.23	36.1	20.3	4.69	35.2	19.4	5.20
	67	44.0	30.4	3.06	41.9	29.6	3.39	39.6	28.6	3.77	37.3	27.7	4.17	34.4	26.6	4.61	30.2	25.0	5.09
	63††	38.6	28.5	2.98	35.8	27.3	3.29	33.1	26.2	3.64	31.8	25.6	4.06	30.2	25.0	4.53	26.6	23.5	4.99
	62	38.1	35.8	2.97	35.4	34.4	3.29	33.1	33.1	3.64	32.0	32.0	4.07	30.7	30.7	4.54	28.1	28.1	5.03
	57	37.3	37.3	2.96	35.1	35.1	3.28	33.8	33.8	3.65	32.4	32.4	4.08	30.8	30.8	4.54	28.1	28.1	5.03
1400	72	47.1	23.9	3.16	45.3	23.3	3.50	43.2	22.7	3.88	41.0	22.0	4.30	38.4	21.2	4.75	35.6	20.4	5.29
	67	44.5	32.0	3.13	42.2	31.0	3.46	40.0	30.2	3.83	37.8	29.5	4.24	35.2	28.6	4.70	30.9	27.0	5.18
	63††	39.7	30.5	3.07	36.8	29.3	3.38	34.4	28.3	3.74	33.1	27.7	4.16	31.2	26.9	4.61	27.6	25.4	5.08
	62	39.2	38.4	3.06	37.7	37.5	3.39	35.5	35.5	3.76	34.4	34.4	4.19	32.8	32.8	4.64	29.8	29.8	5.14
	57	38.9	38.9	3.05	37.6	37.6	3.39	36.2	36.2	3.77	34.8	34.8	4.20	32.4	32.4	4.64	29.6	29.6	5.14
1575	72	47.6	24.7	3.24	45.9	24.3	3.59	43.7	23.7	3.96	41.4	23.0	4.38	38.7	22.2	4.84	35.8	21.4	5.38
	67	44.9	33.4	3.20	42.5	32.5	3.53	40.4	31.9	3.90	38.1	31.1	4.31	35.6	30.4	4.78	31.6	28.8	5.26
	63††	41.0	32.5	3.15	39.1	31.7	3.48	35.9	30.4	3.83	34.2	29.7	4.25	32.0	28.7	4.70	28.0	27.0	5.17
	62	41.5	41.3	3.16	39.9	39.9	3.50	37.6	37.6	3.87	36.5	36.5	4.29	34.0	34.0	4.74	31.0	31.0	5.24
	57	41.3	41.3	3.16	39.8	39.8	3.49	38.4	38.4	3.88	36.5	36.5	4.29	33.8	33.8	4.74	30.9	30.9	5.24

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CE3AA	042	0.98	0.91	CK5A/CK5BW	048	0.99	0.94
	048	0.99	0.92	CK5PA	042	0.98	0.94
CK3BA	042	0.98	0.91	CK5PW	048	0.99	0.94
	048	0.99	0.91	**COILS + 58MVP060-14 VARIABLE SPEED FURNACE**			
CK5A/CK5BA	042	0.98	0.91	CK3BA	042	0.98	0.94
	048	0.99	0.91	**COILS + 58MVP080-14 VARIABLE SPEED FURNACE**			
CK5A/CK5BT	042	0.98	0.91	CC5A/CD5AA	042	0.98	0.93
	048	0.99	0.91	CD5AA	048	0.99	0.94
CK5A/CK5BW	048	0.99	0.91	CK3BA	042	0.98	0.93
CK5PA	042	0.98	0.91		048	0.99	0.93
	048	0.99	0.91	CK5A/CK5BA	042	0.98	0.93
CK5PT	042	0.98	0.91		048	0.99	0.93
	048	0.99	0.91	CK5PA	042	0.98	0.93
CK5PW	048	0.99	0.91		048	0.99	0.93
COILS + 58CV(A,X)155-22 VARIABLE SPEED FURNACE				**COILS + 58MVP080-20 VARIABLE SPEED FURNACE**			
CC5A/CD5AA	042	0.98	0.91	CC5A/CD5AA	042	0.98	0.94
CC5A/CD5AC	048	0.98	0.91	CD5AA	048	0.99	0.95
CC5A/CD5AW	042	0.98	0.92	CK3BA	042	0.98	0.94
	048	0.99	0.91		048	0.99	0.94
CD5AA	048	0.99	0.91	CK5A/CK5BA	042	0.98	0.94
CE3AA	042	0.98	0.91		048	0.99	0.94
	048	0.99	0.91	CK5PA	042	0.98	0.94
CK3BA	042	0.98	0.91		048	0.99	0.94
	048	0.99	0.91	**COILS + 58MVP100-20 VARIABLE SPEED FURNACE**			
CK5A/CK5BA	042	0.98	0.91	CC5A/CD5AA	042	0.98	0.92
	048	0.99	0.91	CD5AA	048	0.99	0.92
CK5A/CK5BT	042	0.98	0.91	CK3BA	042	0.98	0.91
	048	0.99	0.91	CK5A/CK5BA	042	0.98	0.91
CK5A/CK5BW	048	0.99	0.91		048	0.99	0.92
CK5PA	042	0.98	0.91	CK5PA	042	0.98	0.91
	048	0.99	0.91		048	0.99	0.92
CK5PT	042	0.98	0.91	**COILS + 58MVP120-20 VARIABLE SPEED FURNACE**			
	048	0.99	0.91	CC5A/CD5AA	042	0.98	0.92
CK5PW	048	0.99	0.91	CC5A/CD5AW	048	0.99	0.92
COILS + 58MVP040-14 VARIABLE SPEED FURNACE				CK5A/CK5BA	042	0.98	0.92
CC5A/CD5AA	042	0.98	0.94	CK5A/CK5BW	048	0.99	0.92
CC5A/CD5AW	048	0.99	0.95	CK5PA	042	0.98	0.92
CK5A/CK5BA	042	0.98	0.94	CK5PW	048	0.99	0.92

See notes on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
38EZG048-30, 50 Outdoor Section With CK5A/CK5BA060 Indoor Section																			
1 400	72	53.1	26.3	3.58	51.2	25.7	3.96	49.3	25.2	4.40	47.0	24.4	4.88	44.1	23.5	5.41	41.0	22.4	6.03
	67	49.9	34.4	3.53	47.7	33.5	3.90	45.3	32.6	4.31	42.9	31.8	4.79	39.8	30.6	5.31	35.3	28.9	5.87
	63††	46.8	33.8	3.49	44.6	32.9	3.85	40.8	31.2	4.24	36.7	29.5	4.68	34.0	28.3	5.18	31.0	27.1	5.76
	62	46.2	42.1	3.48	42.7	40.5	3.83	39.1	38.7	4.22	37.0	37.0	4.68	34.9	34.9	5.21	32.4	32.4	5.80
	57	44.7	44.7	3.46	42.3	42.3	3.82	39.7	39.7	4.23	37.0	37.0	4.68	35.3	35.3	5.21	32.2	32.2	5.80
1 600	72	53.7	27.3	3.67	51.8	26.7	4.05	50.0	26.3	4.49	47.4	25.5	4.96	44.4	24.6	5.49	41.4	23.7	6.13
	67	50.5	36.2	3.61	48.3	35.4	3.98	46.0	34.8	4.41	43.5	34.0	4.88	40.3	32.8	5.41	35.8	31.1	5.97
	63††	47.7	35.9	3.58	45.4	34.9	3.95	41.4	33.3	4.34	37.6	31.7	4.77	34.8	30.5	5.28	31.7	29.2	5.86
	62	47.2	45.2	3.57	44.1	43.6	3.93	42.0	42.0	4.35	40.0	40.0	4.82	37.8	37.8	5.34	33.8	33.8	5.92
	57	46.7	46.7	3.57	44.1	44.1	3.93	41.7	41.7	4.34	40.1	40.1	4.82	37.4	37.4	5.34	34.2	34.2	5.93
1 800	72	54.0	28.1	3.75	52.2	27.6	4.13	50.0	27.1	4.56	47.5	26.4	5.03	44.8	25.7	5.58	41.7	24.8	6.23
	67	50.8	37.7	3.69	48.9	37.4	4.07	46.5	36.8	4.50	44.0	36.0	4.98	40.8	34.9	5.50	36.0	33.1	6.07
	63††	48.2	37.6	3.66	46.0	36.9	4.04	43.5	35.9	4.45	40.0	34.4	4.89	35.9	32.7	5.39	32.4	31.2	5.96
	62	48.1	47.7	3.66	46.2	46.2	4.04	44.2	44.2	4.46	42.0	42.0	4.94	39.3	39.3	5.46	35.0	35.0	6.04
	57	47.9	47.9	3.65	46.2	46.2	4.04	44.2	44.2	4.46	42.0	42.0	4.94	39.2	39.2	5.46	35.5	35.5	6.04

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling	
		Capacity	Power
CC5A/CD5AA	060	0.98	1.00
CC5A/CD5AC	048	0.96	0.99
CC5A/CD5AW	048	0.98	1.00
	060	1.01	1.02
CD5AA	048	0.98	1.00
CE3AA	048	0.98	0.99
	060	1.00	1.00
CF5AA	048	0.96	0.98
CK3BA	048	0.98	1.00
	060	1.00	1.00
CK5A/CK5BA	048	0.98	1.00
	060	1.00	1.00
CK5A/CK5BT	048	0.98	1.00
	060	1.00	1.00
CK5A/CK5BW	048	0.98	1.00
CK5A/CK5BX	060	1.00	0.99
CK5PA	048	0.98	1.00
	060	1.00	1.00
CK5PT	048	0.98	1.00
	060	1.00	1.00
CK5PW	048	0.98	1.00
CK5PX	060	1.00	0.99
F(A,B)4BN(F,B,C)	048	0.98	1.01
	060	1.00	1.03
FB4BNB	070	1.01	1.01
FC4CN(F,B)	048	0.97	1.01
	060	0.98	1.02
FC4CNB	054	0.98	0.98
	070	1.00	1.00
FG3AAA	048	0.96	0.98
	060	0.98	0.99
FK4DNB	006	1.00	0.91
FK4DNF	005	0.98	0.92
FV4BNB	006	1.00	0.91
FV4BNF	005	0.98	0.92
FX4BNB	060	0.99	0.99
FX4BNF	048	0.98	1.00
COILS + 58CV(A,X)090-16 VARIABLE SPEED FURNACE			
CC5A/CD5AC	048	0.96	0.94
	—	—	—

Indoor Section	Size	Cooling	
		Capacity	Power
CD5AA	048	0.97	0.94
CE3AA	048	0.97	0.95
	060	0.98	0.93
CK3BA	048	0.97	0.95
CK5A/CK5BA	048	0.97	0.95
CK5A/CK5BT	048	0.97	0.95
CK5PA	048	0.97	0.96
CK5PT	048	0.97	0.96
COILS + 58CV(A,X)110-22 VARIABLE SPEED FURNACE			
CC5A/CD5AA	060	0.98	0.94
CC5A/CD5AC	048	0.96	0.93
CC5A/CD5AW	048	0.97	0.93
CD5AA	048	0.97	0.93
CD5PX	060	1.00	0.93
CE3AA	048	0.97	0.93
	060	0.98	0.92
CK3BA	048	0.97	0.93
	060	0.98	0.92
CK5A/CK5BA	048	0.97	0.93
	060	0.98	0.92
CK5A/CK5BT	048	0.97	0.93
	060	0.98	0.92
CK5A/CK5BW	048	0.97	0.93
CK5A/CK5BX	060	1.00	0.92
CK5PA	048	0.97	0.94
	060	0.98	0.92
CK5PT	048	0.97	0.94
	060	0.98	0.92
CK5PW	048	0.97	0.94
CK5PX	060	1.00	0.92
COILS + 58CV(A,X)135-22 VARIABLE SPEED FURNACE			
CC5A/CD5AA	060	0.98	0.94
CC5A/CD5AC	048	0.96	0.93
CC5A/CD5AW	048	0.97	0.93
	060	0.98	0.92
CD5AA	048	0.97	0.93
CE3AA	048	0.97	0.94
	060	0.98	0.92
CK3BA	048	0.97	0.93
	060	0.98	0.92

See notes on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																
		75			85			95			105			115			125		
CFM	EWB	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**	Capacity MBtuh† Total	Capacity MBtuh† Sens‡	Total System kW**
38EZG048-30, 50 Outdoor Section With CK5A/CK5BA060 Indoor Section Continued																			
1400	72	53.1	26.3	3.58	51.2	25.7	3.96	49.3	25.2	4.40	47.0	24.4	4.88	44.1	23.5	5.41	41.0	22.4	6.03
	67	49.9	34.4	3.53	47.7	33.5	3.90	45.3	32.6	4.31	42.9	31.8	4.79	39.8	30.6	5.31	35.3	28.9	5.87
	63††	46.8	33.8	3.49	44.6	32.9	3.85	40.8	31.2	4.24	36.7	29.5	4.68	34.0	28.3	5.18	31.0	27.1	5.76
	62	46.2	42.1	3.48	42.7	40.5	3.83	39.1	38.7	4.22	37.0	37.0	4.68	34.9	34.9	5.21	32.4	32.4	5.80
	57	44.7	44.7	3.46	42.3	42.3	3.82	39.7	39.7	4.23	37.0	37.0	4.68	35.3	35.3	5.21	32.2	32.2	5.80
1600	72	53.7	27.3	3.67	51.8	26.7	4.05	50.0	26.3	4.49	47.4	25.5	4.96	44.4	24.6	5.49	41.4	23.7	6.13
	67	50.5	36.2	3.61	48.3	35.4	3.98	46.0	34.8	4.41	43.5	34.0	4.88	40.3	32.8	5.41	35.8	31.1	5.97
	63††	47.7	35.9	3.58	45.4	34.9	3.95	41.4	33.3	4.34	37.6	31.7	4.77	34.8	30.5	5.28	31.7	29.2	5.86
	62	47.2	45.2	3.57	44.1	43.6	3.93	42.0	42.0	4.35	40.0	40.0	4.82	37.8	37.8	5.34	33.8	33.8	5.92
	57	46.7	46.7	3.57	44.1	44.1	3.93	41.7	41.7	4.34	40.1	40.1	4.82	37.4	37.4	5.34	34.2	34.2	5.93
1800	72	54.0	28.1	3.75	52.2	27.6	4.13	50.0	27.1	4.56	47.5	26.4	5.03	44.8	25.7	5.58	41.7	24.8	6.23
	67	50.8	37.7	3.69	48.9	37.4	4.07	46.5	36.8	4.50	44.0	36.0	4.98	40.8	34.9	5.50	36.0	33.1	6.07
	63††	48.2	37.6	3.66	46.0	36.9	4.04	43.5	35.9	4.45	40.0	34.4	4.89	35.9	32.7	5.39	32.4	31.2	5.96
	62	48.1	47.7	3.66	46.2	46.2	4.04	44.2	44.2	4.46	42.0	42.0	4.94	39.3	39.3	5.46	35.0	35.0	6.04
	57	47.9	47.9	3.65	46.2	46.2	4.04	44.2	44.2	4.46	42.0	42.0	4.94	39.2	39.2	5.46	35.5	35.5	6.04

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling Capacity	Cooling Power
CK5 A/CK5BA	048	0.97	0.93
	060	0.98	0.92
CK5 A/CK5BT	048	0.97	0.93
	060	0.98	0.92
CK5A/CK5BW	048	0.97	0.93
CK5A/CK5BX	060	1.00	0.93
CK5PA	048	0.97	0.94
	060	0.98	0.93
CK5PT	048	0.97	0.94
	060	0.98	0.93
CK5PW	048	0.97	0.94
CK5PX	060	1.00	0.93
COILS + 58CV(A,X)155-22 VARIABLE SPEED FURNACE			
CC5A/CD5AA	060	0.98	0.93
CC5A/CD5AC	048	0.96	0.92
CC5A/CD5AW	048	0.97	0.92
	060	0.98	0.91
CD5AA	048	0.97	0.92
CE3AA	048	0.97	0.93
	060	0.98	0.91
CK3BA	048	0.97	0.92
	060	0.98	0.91
CK5A/CK5BA	048	0.97	0.92
	060	0.98	0.91
CK5A/CK5BT	048	0.97	0.92
	060	0.98	0.91
CK5A/CK5BW	048	0.97	0.92
CK5A/CK5BX	060	1.00	0.92
CK5PA	048	0.97	0.94
	060	0.98	0.92
CK5PT	048	0.97	0.94
	060	0.98	0.92
CK5PW	048	0.97	0.94
CK5PX	060	1.00	0.92

Indoor Section	Size	Cooling Capacity	Cooling Power
COILS + 58MVP080-14 VARIABLE SPEED FURNACE			
CD5AA	048	0.97	0.97
CK5A/CK5BA	048	0.97	0.97
CK5PA	048	0.97	0.97
COILS + 58MVP080-20 VARIABLE SPEED FURNACE			
CC5A/CD5AW	060	1.00	0.99
CK3BA	048	0.97	0.98
CK5A/CK5BA	048	0.97	0.98
	060	0.98	0.97
CK5A/CK5BX	060	0.98	0.96
CK5PA	048	0.97	0.98
	060	0.98	0.97
CK5PX	060	0.98	0.96
COILS + 58MVP100-20 VARIABLE SPEED FURNACE			
CC5A/CD5AA	060	0.97	0.95
CC5A/CD5AW	060	0.99	0.95
CD5AA	048	0.97	0.97
CK3BA	048	0.97	0.95
CK5A/CK5BA	048	0.97	0.95
	060	0.98	0.94
CK5A/CK5BX	060	1.00	0.95
CK5PA	048	0.97	0.95
	060	0.98	0.94
CK5PX	060	1.00	0.95
COILS + 58MVP120-20 VARIABLE SPEED FURNACE			
CC5A/CD5AA	060	0.97	0.95
CC5A/CD5AW	048	0.98	0.96
	060	0.99	0.95
CK5A/CK5BA	060	0.98	0.94
CK5A/CK5BW	048	0.97	0.94
CK5A/CK5BX	060	1.00	0.95
CK5PA	060	0.98	0.94
CK5PW	048	0.97	0.94
CK5PX	060	1.00	0.95

See notes on pg. 29.

Detailed cooling capacities* continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
38EZG060-30, 31, 50, 51 Outdoor Section With CK5A/CK5BA060 Indoor Section																			
1 600	72	67.5	32.8	4.50	64.6	31.8	4.99	61.6	30.7	5.54	58.3	29.5	6.14	54.8	28.3	6.81	50.8	26.9	7.57
	67	62.8	41.9	4.44	59.7	40.6	4.91	56.7	39.4	5.45	53.3	38.0	6.06	49.9	36.7	6.71	44.2	34.5	7.42
	63††	55.5	39.5	4.32	51.6	37.8	4.77	47.6	36.0	5.27	45.3	35.1	5.88	42.7	33.9	6.55	39.1	32.5	7.28
	62	54.2	48.8	4.30	50.5	47.1	4.75	46.7	45.2	5.26	44.5	44.1	5.86	42.7	42.7	6.55	40.2	40.2	7.30
	57	50.9	50.9	4.25	47.8	47.8	4.70	46.1	46.1	5.25	44.2	44.2	5.85	42.4	42.4	6.54	40.4	40.4	7.30
1 800	72	68.2	33.7	4.58	65.4	32.8	5.08	62.4	31.7	5.63	59.0	30.6	6.24	55.4	29.4	6.91	51.3	28.1	7.66
	67	63.8	43.9	4.52	60.8	42.8	5.01	57.4	41.4	5.54	54.1	40.1	6.15	50.5	38.8	6.82	44.8	36.6	7.52
	63††	56.6	41.6	4.41	52.6	39.9	4.87	50.4	39.0	5.41	48.0	38.0	6.01	45.4	36.8	6.69	39.9	34.6	7.38
	62	55.5	51.9	4.40	51.8	50.1	4.85	49.7	49.1	5.39	47.7	47.7	6.01	45.8	45.8	6.70	41.7	41.7	7.43
	57	52.9	52.9	4.36	51.2	51.2	4.84	49.4	49.4	5.38	47.4	47.4	6.00	45.6	45.6	6.70	41.9	41.9	7.43
2 000	72	68.8	34.6	4.67	66.0	33.7	5.16	62.9	32.7	5.72	59.5	31.7	6.33	55.8	30.5	7.00	51.7	29.2	7.75
	67	64.4	45.6	4.60	61.5	44.6	5.09	58.0	43.2	5.62	54.7	42.1	6.23	51.1	40.9	6.91	45.8	38.9	7.62
	63††	57.6	43.6	4.51	53.9	42.1	4.96	52.9	41.7	5.53	50.5	40.7	6.14	45.6	38.7	6.78	40.5	36.6	7.47
	62	56.8	54.9	4.49	54.7	53.9	4.97	52.5	52.5	5.52	50.5	50.5	6.15	47.8	47.8	6.82	43.0	43.0	7.55
	57	56.1	56.1	4.48	54.1	54.1	4.97	52.3	52.3	5.52	50.3	50.3	6.14	47.8	47.8	6.82	43.1	43.1	7.55

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CC5A/CD5AA	060	0.95	0.97	CK5PA	060	1.00	0.98
CC5A/CD5AW	060	1.00	1.00	CK5PT	060	1.00	0.98
CE3AA	060	1.00	0.99	CK5PX	060	1.00	0.95
CK3BA	060	1.00	1.00	**COILS + 58CV(A,X)135-22 VARIABLE SPEED FURNACE**			
CK5A/CK5BA	060	1.00	1.00	CC5A/CD5AA	060	0.97	0.97
CK5A/CK5BT	060	1.00	1.00	CC5A/CD5AW	060	1.00	0.97
CK5A/CK5BX	060	1.00	0.99	CE3AA	060	0.98	0.95
CK5PA	060	1.00	1.00	CK3BA	060	1.00	0.98
CK5PT	060	1.00	1.00	CK5A/CK5BA	060	1.00	0.98
CK5PX	060	1.00	0.99	CK5A/CK5BT	060	1.00	0.98
F(A,B)4BN(F,B,C)	060	0.98	1.01	CK5A/CK5BX	060	1.00	0.95
FB4BNB	070	1.00	0.99	CK5PA	060	1.00	0.98
FC4CN(F,B)	060	0.98	1.01	CK5PT	060	1.00	0.98
FC4CNB	070	1.00	0.99	CK5PX	060	1.00	0.95
FG3AAA	060	0.97	0.97	**COILS + 58CV(A,X)155-22 VARIABLE SPEED FURNACE**			
FK4DNB	006	1.00	0.94	CC5A/CD5AA	060	0.97	0.96
FV4BNB	006	1.00	0.94	CC5A/CD5AW	060	1.00	0.97
FX4BNB	060	1.00	0.99	CE3AA	060	0.98	0.95
COILS + 58CV(A,X)110-22 VARIABLE SPEED FURNACE				CK3BA	060	1.00	0.97
CC5A/CD5AA	060	0.97	0.97	CK5A/CK5BA	060	1.00	0.97
CD5PX	060	1.00	0.97	CK5A/CK5BT	060	1.00	0.97
CE3AA	060	0.98	0.95	CK5A/CK5BX	060	1.00	0.95
CK3BA	060	1.00	0.98	CK5PA	060	1.00	0.97
CK5A/CK5BA	060	1.00	0.98	CK5PT	060	1.00	0.97
CK5A/CK5BT	060	1.00	0.98	CK5PX	060	1.00	0.95
CK5A/CK5BX	060	1.00	0.95		—	—	—

NOTE: When the required data falls between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

* Detailed cooling capacities are based on indoor and outdoor unit at same elevation per ARI standard 210/240-94. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80°F (27°C) entering air at the indoor coil. For sensible capacities at other than 80°F (27°C), deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree below 80°F (27°C), or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree above 80°F (27°C).

** Unit kW is total of indoor and outdoor unit kilowatts.

††At TVA rating indoor condition (75°F edb/63°F ewb). All other indoor air temperatures are at 80°F edb.

Condenser only ratings*

SST °F		CONDENSER ENTERING AIR TEMPERATURES °F							
		55	65	75	85	95	105	115	125
38EZG018-30									
30	TCG	20.5	17.5	15.1	13.3	11.9	10.7	9.30	7.96
	SDT	75.9	85.3	95.1	105.	115.	125.	135.	145.
	KW	1.04	1.11	1.18	1.24	1.30	1.36	1.39	1.42
35	TCG	23.9	20.5	17.6	15.4	13.7	12.3	10.9	9.55
	SDT	77.2	86.1	95.4	105.	115.	125.	135.	145.
	KW	1.04	1.13	1.20	1.27	1.34	1.41	1.47	1.52
40	TCG	27.4	23.7	20.4	17.8	15.7	14.0	12.6	11.1
	SDT	79.1	87.5	96.4	106.	115.	125.	135.	145.
	KW	1.04	1.15	1.23	1.31	1.38	1.45	1.53	1.60
45	TCG	31.2	27.1	23.5	20.5	18.0	15.9	14.3	12.6
	SDT	81.3	89.4	97.9	107.	116.	126.	136.	145.
	KW	1.03	1.16	1.25	1.34	1.42	1.50	1.58	1.67
50	TCG	35.3	30.8	26.8	23.4	20.5	18.1	16.1	14.1
	SDT	83.8	91.6	99.8	108.	117.	127.	136.	146.
	KW	1.02	1.16	1.28	1.37	1.46	1.54	1.63	1.72
55	TCG	39.6	34.7	30.4	26.5	23.2	20.4	18.1	15.8
	SDT	86.5	94.1	102.	110.	119.	128.	137.	146.
	KW	0.991	1.16	1.29	1.40	1.50	1.59	1.68	1.77
38EZG024-30									
30	TCG	23.3	22.1	20.8	19.6	18.3	17.0	15.7	14.4
	SDT	76.9	86.8	96.6	107.	117.	127.	136.	146.
	KW	1.20	1.37	1.55	1.76	1.98	2.22	2.48	2.74
35	TCG	25.6	24.3	22.9	21.5	20.2	18.7	17.3	15.9
	SDT	78.1	87.9	97.7	108.	117.	127.	137.	147.
	KW	1.20	1.37	1.56	1.76	1.99	2.24	2.50	2.76
40	TCG	28.1	26.6	25.1	23.6	22.1	20.6	19.0	17.4
	SDT	79.5	89.2	98.9	109.	119.	128.	138.	148.
	KW	1.20	1.37	1.57	1.78	2.00	2.25	2.52	2.79
45	TCG	30.6	29.0	27.4	25.8	24.2	22.5	20.8	19.1
	SDT	81.1	90.7	100.	110.	120.	130.	140.	149.
	KW	1.20	1.38	1.58	1.79	2.02	2.27	2.55	2.82
50	TCG	33.4	31.6	29.9	28.2	26.4	24.6	22.7	20.8
	SDT	82.8	92.4	102.	112.	121.	131.	141.	151.
	KW	1.21	1.39	1.59	1.80	2.04	2.30	2.57	2.85
55	TCG	36.2	34.4	32.5	30.6	28.7	26.7	24.7	22.6
	SDT	84.7	94.2	104.	113.	123.	133.	142.	152.
	KW	1.22	1.40	1.60	1.82	2.06	2.32	2.60	2.88
38EZG030-30, 50									
30	TCG	26.7	25.2	23.8	22.4	20.9	19.5	18.0	16.4
	SDT	76.8	86.6	96.5	106.	116.	126.	136.	146.
	KW	1.44	1.63	1.84	2.09	2.36	2.67	3.01	3.39
35	TCG	29.3	27.7	26.2	24.6	23.1	21.5	19.8	18.1
	SDT	77.9	87.6	97.4	107.	117.	127.	137.	147.
	KW	1.44	1.63	1.85	2.09	2.37	2.68	3.02	3.39
40	TCG	32.1	30.4	28.7	27.0	25.3	23.6	21.8	19.9
	SDT	79.2	88.9	98.6	108.	118.	128.	138.	148.
	KW	1.46	1.65	1.86	2.10	2.38	2.68	3.02	3.40
45	TCG	35.0	33.2	31.4	29.6	27.7	25.8	23.8	21.8
	SDT	80.7	90.3	100.	110.	119.	129.	139.	149.
	KW	1.47	1.66	1.88	2.12	2.39	2.70	3.04	3.42
50	TCG	38.2	36.2	34.2	32.2	30.2	28.2	26.0	23.7
	SDT	82.4	91.9	101.	111.	121.	131.	140.	150.
	KW	1.49	1.68	1.90	2.14	2.41	2.72	3.06	3.44
55	TCG	41.4	39.3	37.2	35.1	32.9	30.7	28.3	25.8
	SDT	84.2	93.7	103.	113.	122.	132.	142.	151.
	KW	1.51	1.71	1.92	2.16	2.44	2.74	3.08	3.46

See notes on pg. 32.

Condenser only ratings*

SST °F		CONDENSER ENTERING AIR TEMPERATURES °F							
		55	65	75	85	95	105	115	125
38EZG036-30, 31, 50									
30	TCG	32.3	30.5	28.7	26.8	24.9	22.8	20.7	18.3
	SDT	77.0	86.7	96.6	106.	116.	126.	136.	146.
	KW	1.76	2.00	2.27	2.55	2.86	3.19	3.53	3.87
35	TCG	35.4	33.6	31.7	29.7	27.6	25.4	23.1	20.7
	SDT	78.2	87.9	97.6	107.	117.	127.	137.	146.
	KW	1.76	2.00	2.27	2.56	2.88	3.21	3.56	3.93
40	TCG	38.8	36.8	34.7	32.6	30.4	28.1	25.7	23.1
	SDT	79.6	89.2	98.9	109.	118.	128.	138.	147.
	KW	1.76	2.00	2.27	2.57	2.89	3.24	3.60	3.98
45	TCG	42.3	40.2	38.0	35.7	33.4	30.9	28.3	25.5
	SDT	81.2	90.7	100.	110.	120.	129.	139.	148.
	KW	1.77	2.01	2.28	2.58	2.91	3.26	3.63	4.03
50	TCG	45.9	43.7	41.4	39.0	36.5	33.9	31.1	28.1
	SDT	82.9	92.4	102.	111.	121.	131.	140.	150.
	KW	1.78	2.02	2.29	2.60	2.93	3.29	3.67	4.07
55	TCG	49.8	47.4	45.0	42.4	39.8	36.9	34.0	30.8
	SDT	84.8	94.2	104.	113.	123.	132.	142.	151.
38EZG042-30, 50									
30	TCG	36.9	35.0	33.0	31.1	29.1	27.1	25.1	22.9
	SDT	77.8	87.5	97.2	107.	117.	127.	136.	146.
	KW	1.90	2.17	2.46	2.80	3.17	3.59	4.07	4.60
35	TCG	40.4	38.3	36.2	34.1	32.0	29.9	27.6	25.2
	SDT	79.3	88.8	98.5	108.	118.	127.	137.	147.
	KW	1.93	2.19	2.49	2.82	3.20	3.61	4.08	4.60
40	TCG	44.2	41.9	39.7	37.4	35.1	32.8	30.3	27.7
	SDT	81.0	90.4	100.0	110.	119.	129.	138.	148.
	KW	1.97	2.23	2.53	2.86	3.23	3.64	4.11	4.63
45	TCG	48.2	45.7	43.3	40.8	38.3	35.8	33.1	30.3
	SDT	82.8	92.2	102.	111.	121.	130.	140.	149.
	KW	2.01	2.27	2.57	2.90	3.27	3.68	4.14	4.66
50	TCG	52.4	49.7	47.1	44.4	41.7	39.0	36.1	33.0
	SDT	84.9	94.1	103.	113.	122.	132.	141.	150.
	KW	2.05	2.31	2.61	2.95	3.32	3.73	4.19	4.70
55	TCG	56.8	54.0	51.1	48.2	45.3	42.3	39.2	35.8
	SDT	87.0	96.1	105.	115.	124.	133.	142.	152.
	KW	2.11	2.37	2.66	3.00	3.37	3.78	4.24	4.75
38EZG048-30, 50									
30	TCG	42.2	40.0	37.8	35.6	33.4	31.1	28.7	26.2
	SDT	76.9	86.5	96.3	106.	116.	126.	136.	146.
	KW	2.23	2.53	2.87	3.26	3.69	4.17	4.72	5.32
35	TCG	46.3	43.9	41.5	39.1	36.7	34.3	31.7	29.0
	SDT	78.2	87.7	97.4	107.	117.	127.	137.	146.
	KW	2.26	2.56	2.90	3.28	3.70	4.18	4.72	5.32
40	TCG	50.7	48.1	45.5	42.9	40.3	37.6	34.8	31.8
	SDT	79.8	89.2	98.7	108.	118.	128.	137.	147.
	KW	2.30	2.59	2.93	3.31	3.73	4.21	4.74	5.33
45	TCG	55.2	52.5	49.7	46.9	44.0	41.1	38.1	34.9
	SDT	81.5	90.8	100.	110.	119.	129.	138.	148.
	KW	2.35	2.64	2.97	3.35	3.77	4.24	4.77	5.36
50	TCG	60.1	57.1	54.1	51.1	48.0	44.9	41.6	38.1
	SDT	83.5	92.6	102.	111.	121.	130.	140.	149.
	KW	2.40	2.69	3.02	3.40	3.82	4.29	4.81	5.40
55	TCG	65.1	62.0	58.8	55.5	52.2	48.8	45.2	41.4
	SDT	85.6	94.6	104.	113.	122.	132.	141.	151.
	KW	2.45	2.75	3.08	3.45	3.88	4.34	4.86	5.44

See notes on pg. 32.

Condenser only ratings*

SST °F		CONDENSER ENTERING AIR TEMPERATURES °F							
		55	65	75	85	95	105	115	125
38EZG060-30, 31, 50, 51									
30	TCG	53.6	50.8	48.1	45.3	42.5	39.6	36.5	32.7
	SDT	78.4	87.9	97.7	108.	117.	127.	137.	146.
	KW	2.84	3.22	3.64	4.12	4.65	5.24	5.86	6.46
35	TCG	58.7	55.7	52.7	49.7	46.7	43.6	40.3	36.5
	SDT	79.9	89.5	99.2	109.	119.	128.	138.	147.
	KW	2.89	3.26	3.68	4.16	4.70	5.28	5.93	6.59
40	TCG	64.0	60.8	57.6	54.3	51.0	47.7	44.2	40.3
	SDT	81.8	91.2	101.	110.	120.	130.	139.	149.
	KW	2.94	3.31	3.74	4.22	4.75	5.34	5.99	6.69
45	TCG	69.7	66.3	62.8	59.2	55.6	52.0	48.2	44.0
	SDT	83.7	93.1	103.	112.	122.	131.	141.	150.
	KW	3.00	3.37	3.80	4.28	4.82	5.41	6.06	6.78
50	TCG	75.6	72.0	68.2	64.4	60.5	56.5	52.4	47.9
	SDT	85.8	95.1	104.	114.	123.	133.	142.	151.
	KW	3.06	3.44	3.87	4.35	4.89	5.48	6.14	6.85
55	TCG	81.9	78.0	74.0	69.9	65.6	61.2	56.8	51.9
	SDT	88.1	97.3	107.	116.	125.	135.	144.	153.
	KW	3.14	3.52	3.95	4.43	4.97	5.57	6.22	6.94

*ARI listing applies only to systems shown in Combination Ratings table.

KW — Outdoor Unit Kilowatts Only

SDT — Saturated Temperature Leaving Compressor (°F)

SST — Saturated Temperature Entering Compressor (°F)

TCG — Gross Cooling Capacity (1000 Btuh)

System design summary

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01–in. wc.
2. Minimum outdoor operating air temperature for cooling mode without low-ambient operation accessories is 55°F (12.8°C). For Low Ambient applications see the Accessory Usage Guideline in this literature for accessory requirements.
3. Maximum outdoor operating air temperature for cooling mode is 125°F (51.7°C).
4. Minimum outdoor operating air temperature for heating mode is –30°F(–34.4°C).
5. Maximum outdoor operating air temperature for heating mode is 66°F (18.9°C).
6. For reliable operation unit should be level in all horizontal planes within 2 degrees (+/– 3/8 in./ft).
7. Maximum elevation of indoor coil above or below base of outdoor unit without additional consideration is 20 ft. For applications greater than 20 ft, consult the Application Guideline and Service Manual for Air Conditioners and Heat Pumps Using Puron® Refrigerant, Long Line Guideline section. For long line accessories see Accessory Usage Guideline in this literature.
8. For vapor line sizing and capacity losses for interconnecting refrigerant tubing lengths greater than 50 ft consult the Application Guideline and Service Manual for Air Conditioners and Heat Pumps Using Puron® Refrigerant. Only 3/8 in. liquid lines are approved for long line applications on Residential products.
9. If any refrigerant tubing is buried, provide a 6 in. vertical rise to the outdoor unit service valve connections. Refrigerant tubing lengths up to 36 in. may be buried without further consideration. Do not bury refrigerant lines longer than 36 in.
10. Use only copper wire for electric connections at unit. Aluminum and clad aluminum wiring are NOT acceptable for the type of connector provided.
11. Do not apply capillary tube indoor coils to these units.
12. Factory-supplied filter drier must be installed. Filter drier must be replaced whenever refrigerant system is opened to the atmosphere for servicing.
13. If factory-supplied TXV (Thermostatic Expansion Valve) or LLS (Liquid LIne Solenoid) is provided, do not deviate or substitute them. If they are not provided from the factory and are required for the application, use only the approved TXV or LLS listed in the Accessories section of this literature.

Guide specifications

Air-Cooled, Split-System Air Conditioner
38EZG
1-1/2 to 5 Tons Nominal

GENERAL

System Description

Outdoor-mounted, air-cooled, split-system air conditioner unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

Quality Assurance

Unit will be rated in accordance with the latest edition of ARI Standard 210.

Unit will be certified for capacity, efficiency, and listed in the latest ARI directory.

Unit construction will comply with latest edition of ANSI/ASHRAE and with NEC.

Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have c-UL approval.

Unit cabinet will be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500-hr salt spray test.

Air-cooled condenser coils will be leak tested at 250 psig and pressure tested at 450 psig.

Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling

Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)

U.S. and Canada only.

PRODUCTS

Equipment

Factory-assembled, single-piece, air-cooled air conditioner unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puron®, and special features required prior to field start-up.

Refrigerant

Refrigerant will be Puron® (R-410A) HFC refrigerant with zero ozone depletion potential. Puron® is approved under the EPA's Significant New Alternatives Program (SNAP).

Unit Cabinet

Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

Fans

Condenser fan will be direct-drive propeller type, discharging air upward.

Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated bearings.

Shafts will be corrosion resistant.

Fan blades will be statically and dynamically balanced.

Condenser fan openings will be equipped with PVC-coated steel wire safety guards.

Compressor

Compressor will be hermetically sealed.

Compressor will be mounted on rubber vibration isolators.

Condenser Coil

Condenser coil will be air cooled.

Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

Refrigeration Components

Refrigeration circuit components will include liquid-line shutoff valve with sweat connections, vapor-line shutoff valves with sweat connections, system charge of Puron® (R-410A) refrigerant, and compressor oil.

Operating Characteristics

The capacity of the unit will meet or exceed _____ Btuh at a suction temperature of _____ °F. The power consumption at full load will not exceed _____ kW.

Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of _____ Btuh or greater at conditions of _____ CFM entering air temperature at the evaporator at _____ °F wet bulb and _____ °F dry bulb, and air entering the unit at _____ °F.

The system will have a SEER of _____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

Nominal unit electrical characteristics will be _____ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.

Unit electrical power will be single point connection.

Control circuit will be 24v.

Special Features

Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

Changes for the Better

MITSUBISHI ELECTRIC

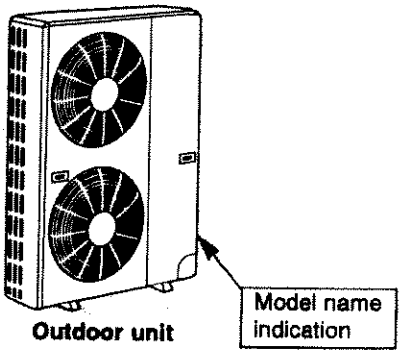
SPLIT-TYPE, AIR CONDITIONERS

No. OC247
REVISED EDITION-E

TECHNICAL & SERVICE MANUAL

<Outdoor unit>

Models **PU12EK**
PU18EK PU18EK$_1$
PU24EK PU24EK$_1$ PU24EK$_2$ PU24EK$_3$
PU30EK PU30EK$_1$ PU30EK$_2$ PU30EK$_3$
PU36EK PU36EK$_1$ PU36EK$_2$ PU36EK$_3$
PU42EK2 PU42EK2$_1$
PU42EK7 PU42EK7$_1$ PU42EK7$_2$



Outdoor unit

Revision:
- Wiring diagram for PU12EK has been modified in "8. WIRING DIAGRAM".
- Transformer and outdoor controller board for PU12EK has been modified in "13. PARTS LIST".

Note:
- Refer to other manual as for Indoor Units.

- Please void OC247 REVISED EDITION-D.

CONTENTS

c ETL US Mr.SLIM™

Correction:
" **13. PARTS LIST** " has been modified on page 33 and 43.

Page	Revise point	Model	Incorrect	Correct
33	FUNCTIONAL PARTS No.12 CAPILLARY TUBE	PU12EK	T7W 588 425	T7W E07 425
	FUNCTIONAL PARTS No.17 TRANSFORMER		T7W 850 799	T7W A30 799
	FUNCTIONAL PARTS No.20 OUTDOOR CONTROLLER BOARD		T7W 850 315	T7W E08 315
43	FUNCTIONAL PARTS No.1 FAN MOTOR	PU42EK7 PU42EK7$_1$ PU42EK7$_2$	T7W A05 763	T7W 853 763

1 FEATURES

1. REDI-CHARGED REFRIGERANT SYSTEM

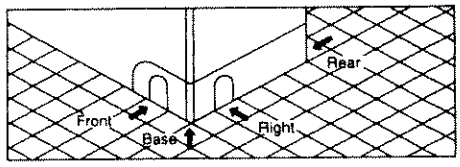
The industry's first redi-charged refrigerant system.
There is no need to adjust the amount of refrigerant to match the piping length on- site unless lines exceed 100ft.
You will see a major reduction in installation time and labor costs.

2. HIGH RELIABILITY AND EASY SERVICING

In addition to the self-diagnostic function, units are also equipped with a 3-minute time delay mechanism (cooling), an auto restart function, an emergency operation function, a test run switch, etc., to assure high reliability and easy servicing.

3. FOUR-WAY PIPING ACCESS MAKES INSTALLATION LAYOUT EASY

Piping on the outdoor unit may be connected from either of four directions: front, rear, side or beneath the base. This easy-access design makes it possible to install a number of units in a compact arrangement at a single site. The outdoor unit allows for unheard-of flexibility in determining a piping layout, thus greatly simplifying installation.



4. FRONT-ACCESS FACILITATES MAINTENANCE

The outdoor unit has been designed with a front-access service panel that allows easy access to all maintenance point, regardless of the installation layout. What's more, this front panel may be removed by loosening only two screws. It all adds up to greatly simplified maintenance work.

2 TECHNICAL CHANGE

(OC247 REVISED EDITION-A)

Change of the service parts.
Refer to "13. PARTS LIST" for the details.

PU18EK → PU18EK$_1$
PU24EK → PU24EK$_1$
PU30EK → PU30EK$_1$
PU36EK → PU36EK$_1$
PU42EK2 → PU42EK2$_1$

1. OUTDOOR CONTROLLER BOARD has been changed.
2. TRANSFORMER has been changed.

PU18EK → PU18EK$_1$

- CONTACTOR has been changed.

(OC247 REVISED EDITION-B)

PU24EK$_1$ → PU24EK$_2$
PU30EK$_1$ → PU30EK$_2$
PU36EK$_1$ → PU36EK$_2$

- COMPRESSOR has been changed.
  (PU24EK model) NH33NBD → NH33NBDT
  (PU30EK model) NH41NAD → NH41NAHT
  (PU36EK model) NH47NAD → NH47NAHT
  Refer to "5. SPECIFICATIONS", "6. DATA" and "13. PARTS LIST" for details.

PU42EK7 → PU42EK7$_1$

1. COMPRESSOR CONTACTOR has been changed to the one equipped THERMAL RELAY.
   Refer to 8.WIRING DIAGRAM and 13.PARTS LIST for details.
2. OUTDOOR CONTROLLER BOARD has been changed.
   Refer to "13. PARTS LIST" for details.

(OC247 REVISED EDITION-D)

PU24EK$_2$ → PU24EK$_3$
PU30EK$_2$ → PU30EK$_3$
PU36EK$_2$ → PU36EK$_3$
PU42EK7$_1$ → PU42EK7$_2$

- DRAIN PAN has been added.

<"13. PARTS LIST" has been changed.>

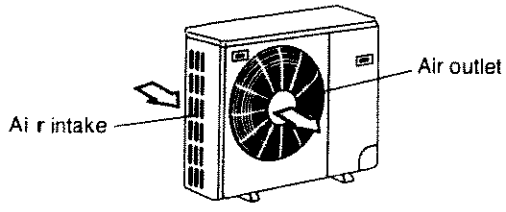
PU36EK$_2$ → PU36EK$_3$

- COMPRESSOR CAPACITOR for PU36EK, PU36EK$_1$, PU36EK$_2$ and PU36EK$_3$ are unified.

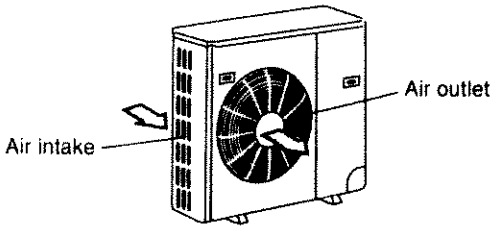
3 COMBINATION OF INDOOR AND OUTDOOR UNITS

Indoor unit		Outdoor unit											
		PU											
Models	Service manual No.	12	18		24		30		36		42		
		EK	EK	EK1	EK	EK1 EK2 EK3	EK	EK1 EK2 EK3	EK	EK1 EK2 EK3	EK2	EK21	EK7 EK71 EK72
PL • AK	OC246	○	—	○	—	○	—	○	—	○	—	—	○
PL • FK(2)	OC001 SECOND EDITION OC003 SECOND EDITION OC194	○	○	○	○	○	○	○	○	○	○	○	—
PC • EK	OC001 SECOND EDITION OC003 SECOND EDITION OC192	—	—	—	○	○	○	○	○	○	○	○	—
PK • EK	OC001 SECOND EDITION OC003 SECOND EDITION	○	○	○	○	○	○	○	—	—	—	—	—
PK • FK(3)	OC121, OC196A OC274	○	—	○	—	○	—	○	—	○	—	—	—
PK • FL(3)	OC185A, OC275	—	—	○	—	○	—	○	—	○	—	—	—
PC • GK	OC278	—	—	—	—	○	—	○	—	○	—	—	○

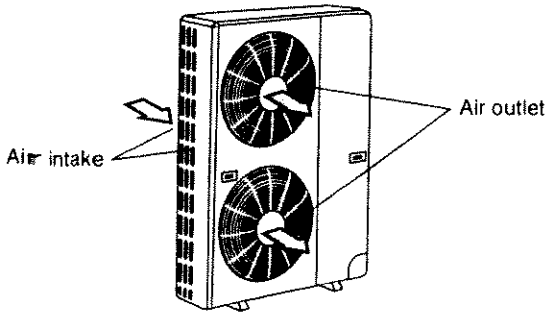
4 PART NAMES AND FUNCTIONS



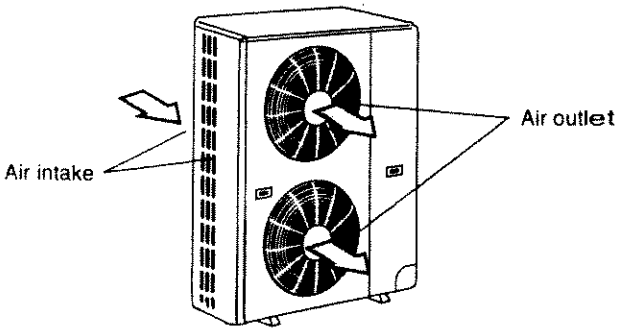
PU12EK
Outdoor unit



PU18EK
PU18EK1
Outdoor unit



PU24EK PU30EK
PU24EK1 PU30EK1
PU24EK2 PU30EK2
PU24EK3 PU30EK3
Outdoor unit



PU36EK PU42EK2 PU42EK7
PU36EK1 PU42EK21 PU42EK71
PU36EK2 PU42EK72
PU36EK3
Outdoor unit

5 SPECIFICATIONS

MODELS : PU12EK PU18EK PU24EK PU30EK PU36EK PU42EK2 PU42EK7
PU18EK$_1$ PU24EK$_1$ PU30EK$_1$ PU36EK$_1$ PU42EK2$_1$ PU42EK7$_1$
PU24EK$_2$ PU30EK$_2$ PU36EK$_2$ PU42EK7$_2$
PU24EK$_3$ PU30EK$_3$ PU36EK$_3$

Item \ Model	PU12EK	PU18EK	PU24EK		PU30EK		PU36EK		PU42EK2	PU42EK7
OUTDOOR UNIT MODELS	**PU12EK**	**PU18EK** **PU18EK$_1$**	PU24EK PU24EK$_1$	PU24EK$_2$ PU24EK$_3$	PU30EK PU30EK$_1$	PU30EK$_2$ PU30EK$_3$	PU36EK PU36EK$_1$	PU36EK$_2$ PU36EK$_3$	**PU42EK2** **PU42EK2$_1$**	**PU42EK7** **PU42EK7$_1$** **PU42EK7$_2$**
External finish	Munsell 5Y 7/1									
Power supply V, phase, Hz	208/230, 1, 60									
Max.fuse size (time delay) A	15	20			30				40	
Min.ampacity A	11	16			20		22		27	28
Fan motor F.L.A.	0.65	0.75	0.65+0.65				0.75+0.75		0.8+0.8	
Compressor Model (type)	RH167NAB	RH247NAB	NH33NBD	NH33NBDT	NH41NAD	NH41NAHT	NH47NAD	NH47NAHT	NH569NXA	ZR42K3PFV
Compressor R.L.A.	8.9	12.0	11.5	10.8	14.0	12.9	17.5	15.1	20.0	20.4
Compressor L.R.A.	29	37	52	57	73	75	87	81	105	109
Crankcase heater A(W)	0.11/0.12(23/28)		0.16/0.17(33/39)							
Refrigerant control	Capillary tube									
Sound level dB	50	53	55						56	
Dimensions W in.	34-1/4						38-3/16			
Dimensions D in.	11-5/8						13-9/16			
Dimensions H in.	25-9/16	33-1/2	49-9/16							
Weight lb	105	154	207		208	210	220	222	260	220
Control voltage (by built-in transformer)	Indoor unit-outdoor unit:DC12V									
REFRIGERANT Name	R22									
REFRIGERANT Charge	4 lbs 14 oz	5 lbs 8 oz	9 lbs 15 oz		10 lbs 2 oz		10 lbs 9 oz		12 lbs 9 oz	11 lbs 0 oz
REFRIGERANT Oil<Model> OZ	16<MS-56>		37<MS32(N-1)>		40<MS32(N-1)>				49<MS32(N-1)>	42<SONTEX 200LT>
REFRIGERANT PIPING	Not supplied(optional parts)									
Pipe size Liquid in.	3/8				1/2					
Pipe size Gas in.	5/8				3/4					
Connection method Indoors	Flared									
Connection method Outdoors	Flared									
Between the indoor & outdoor units Height difference ft	Max. 130		Max, 164							
Between the indoor & outdoor units Piping length ft	Max. 130		Max. 164							

Operating range

		Indoor intake air temperature	Outdoor intake air temperature
Cooling	Maximum	D.B. 95°F, W.B. 71°F	D.B. 115°F
	Minimum	D.B. 67°F, W.B. 57°F	D.B. 0°F ※

※ In case of the wind baffle installed.
(In case of the wind baffle is not installed, the minimum temperature is D.B. 23°F)

6 DATA

1. ADDITIONAL REFRIGERANT CHARGE (R22 : oz)

Service Ref.	Piping length (one way)						Factory charged
	100 ft	115 ft	130 ft	145 ft	160 ft	164 ft	
PU12EK	0	2	4	—	—	—	4 lbs 14 oz
PU18EK PU18EK$_1$	0	2	4	—	—	—	5 lbs 8 oz
PU24EK PU24EK$_1$ PU24EK$_2$ PU24EK$_3$	0	2	4	6	8	9	9 lbs 15 oz
PU30EK PU30EK$_1$ PU30EK$_2$ PU30EK$_3$	0	5	10	14	19	20	10 lbs 2 oz
PU36EK PU36EK$_1$ PU36EK$_2$ PU36EK$_3$	0	5	10	14	19	20	10 lbs 9 oz
PU42EK2 PU42EK2$_1$	0	5	10	14	19	20	12 lbs 9 oz
PU42EK7 PU42EK7$_1$ PU42EK7$_2$	0	5	10	14	19	20	11 lbs 0 oz

2. COMPRESSOR TECHNICAL DATA

at 68°F (Only PU42EK7 PU42EK7$_1$: at 77°F)

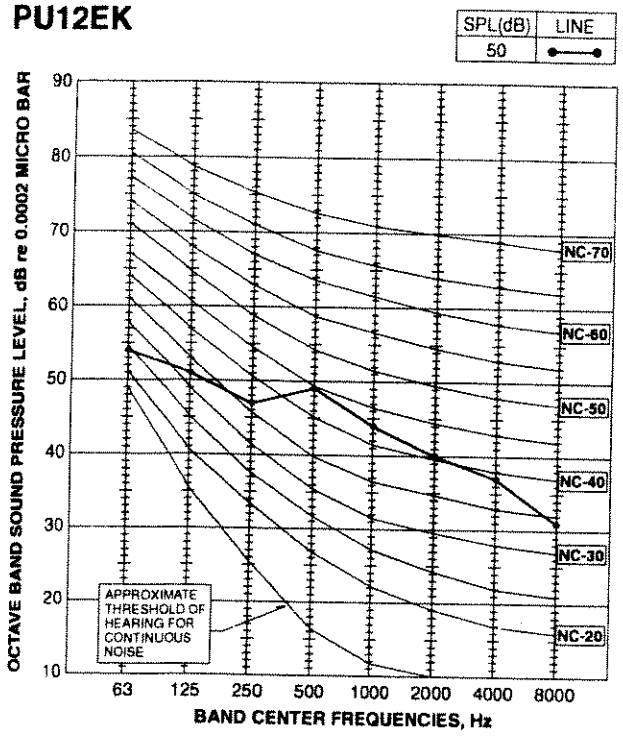
Unit		PU12EK	PU18EK PU18EK$_1$	PU24EK PU24EK$_1$	PU24EK$_2$ PU24EK$_3$	PU30EK PU30EK$_1$	PU30EK$_2$ PU30EK$_3$
Compressor model		RH167NAB	RH247NAB	NH33NBD	NH33NBDT	NH41NAD	NH41NAHT
Winding Resistance (Ω)	R-C	2.47	1.59	0.92	0.92	0.63	0.62
	S-C	4.62	3.22	1.93	1.93	1.37	1.51

at 68°F(Only PU42EK7 PU42EK7$_1$: at 77°F)

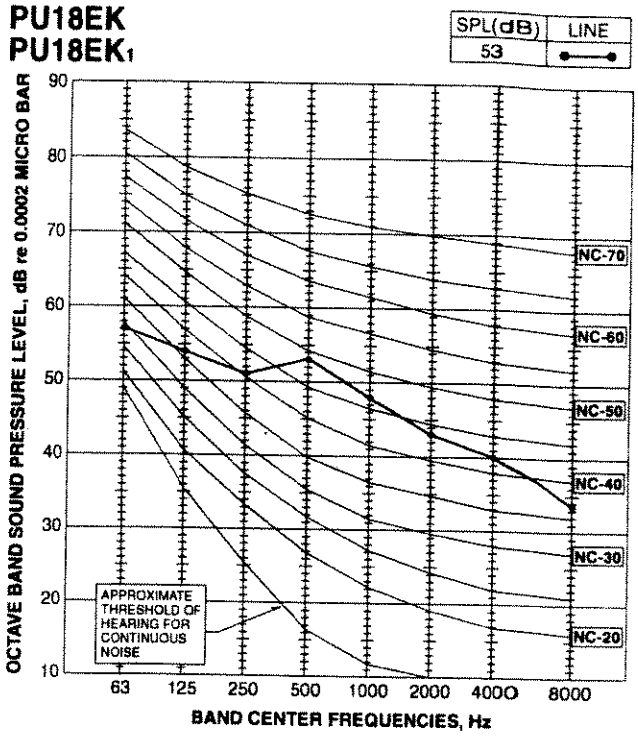
Unit		PU36EK PU36EK$_1$	PU36EK$_2$ PU36EK$_3$	PU42EK2 PU42EK2$_1$	PU42EK7 PU42EK7$_1$ PU42EK7$_2$
Compressor model		NH47NAD	NH47NAHT	NH569NXA	ZR42K3PFV
Winding Resistance (Ω)	R-C	0.55	0.52	0.55	0.54
	S-C	1.24	1.28	1.24	1.28

3. NOISE CRITERION CURVES

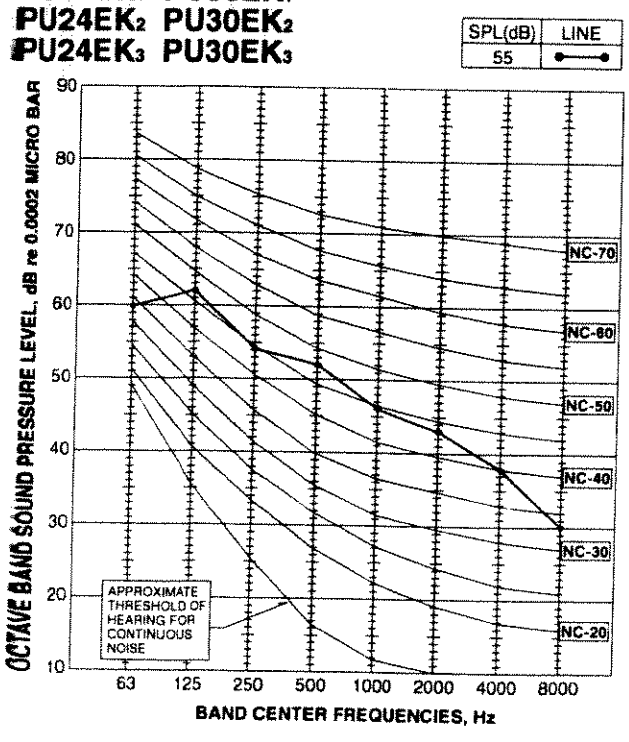
PU12EK



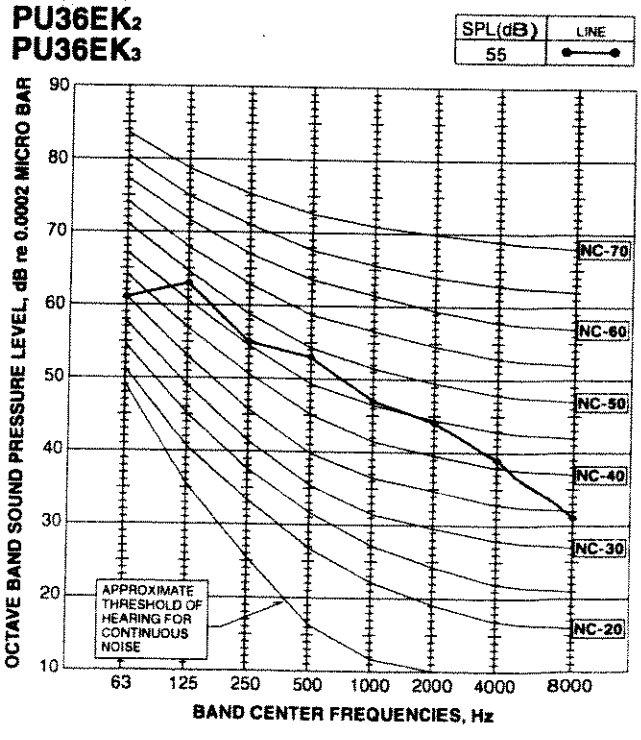
PU18EK
PU18EK$_1$



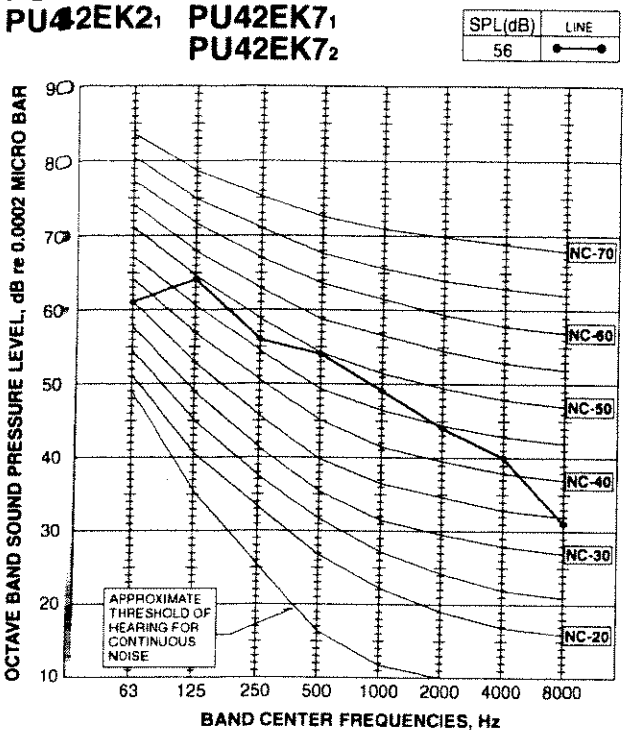
PU24EK PU30EK
PU24EK$_1$ PU30EK$_1$
PU24EK$_2$ PU30EK$_2$
PU24EK$_3$ PU30EK$_3$

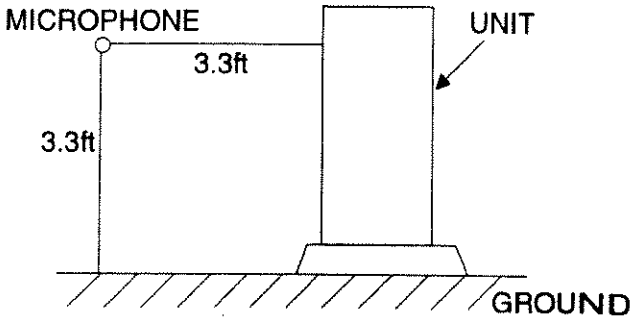


PU36EK
PU36EK$_1$
PU36EK$_2$
PU36EK$_3$



PU42EK2 PU42EK7
PU42EK2$_1$ PU42EK7$_1$
PU42EK7$_2$

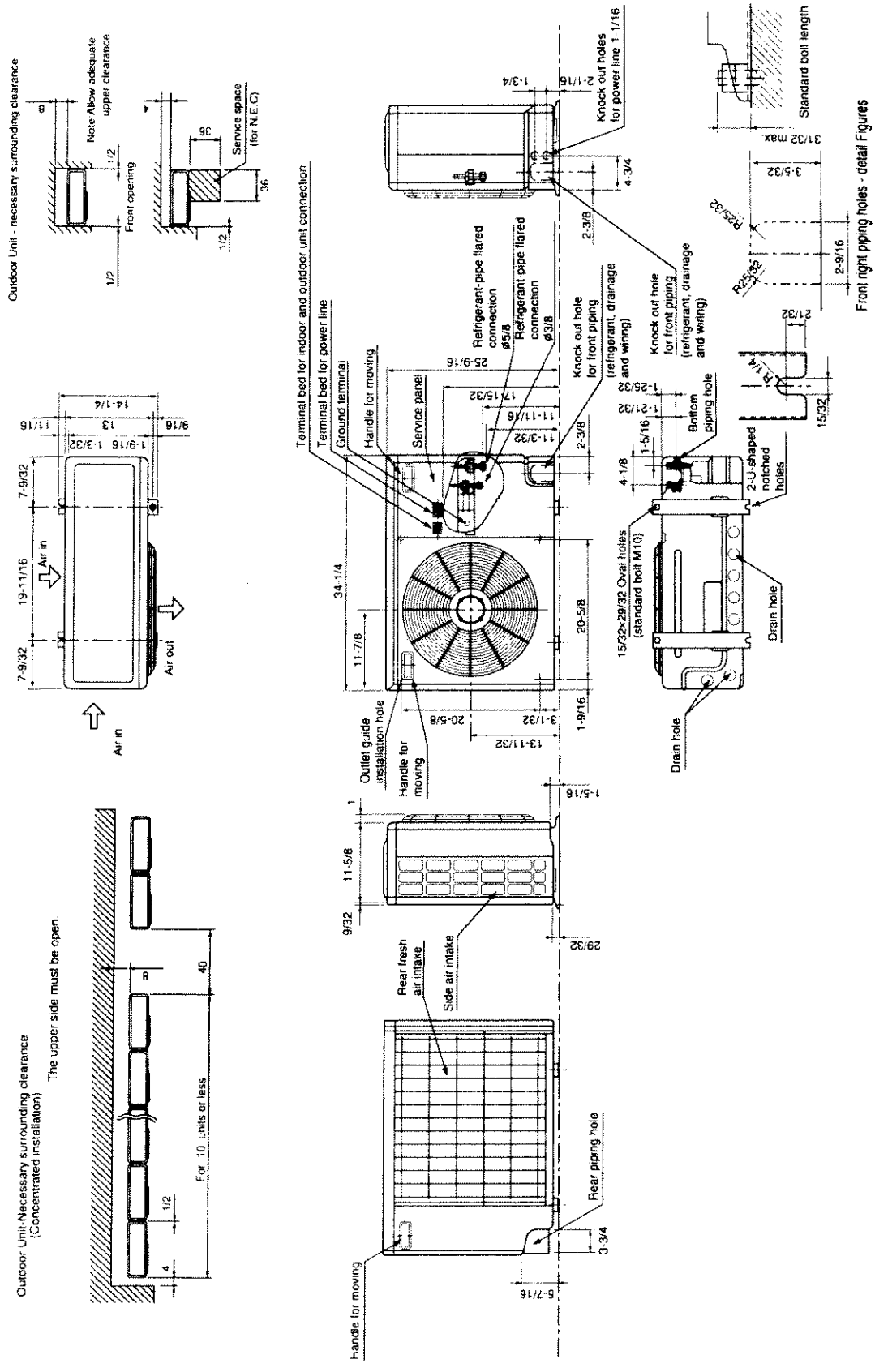




7 OUTLINES AND DIMENSIONS

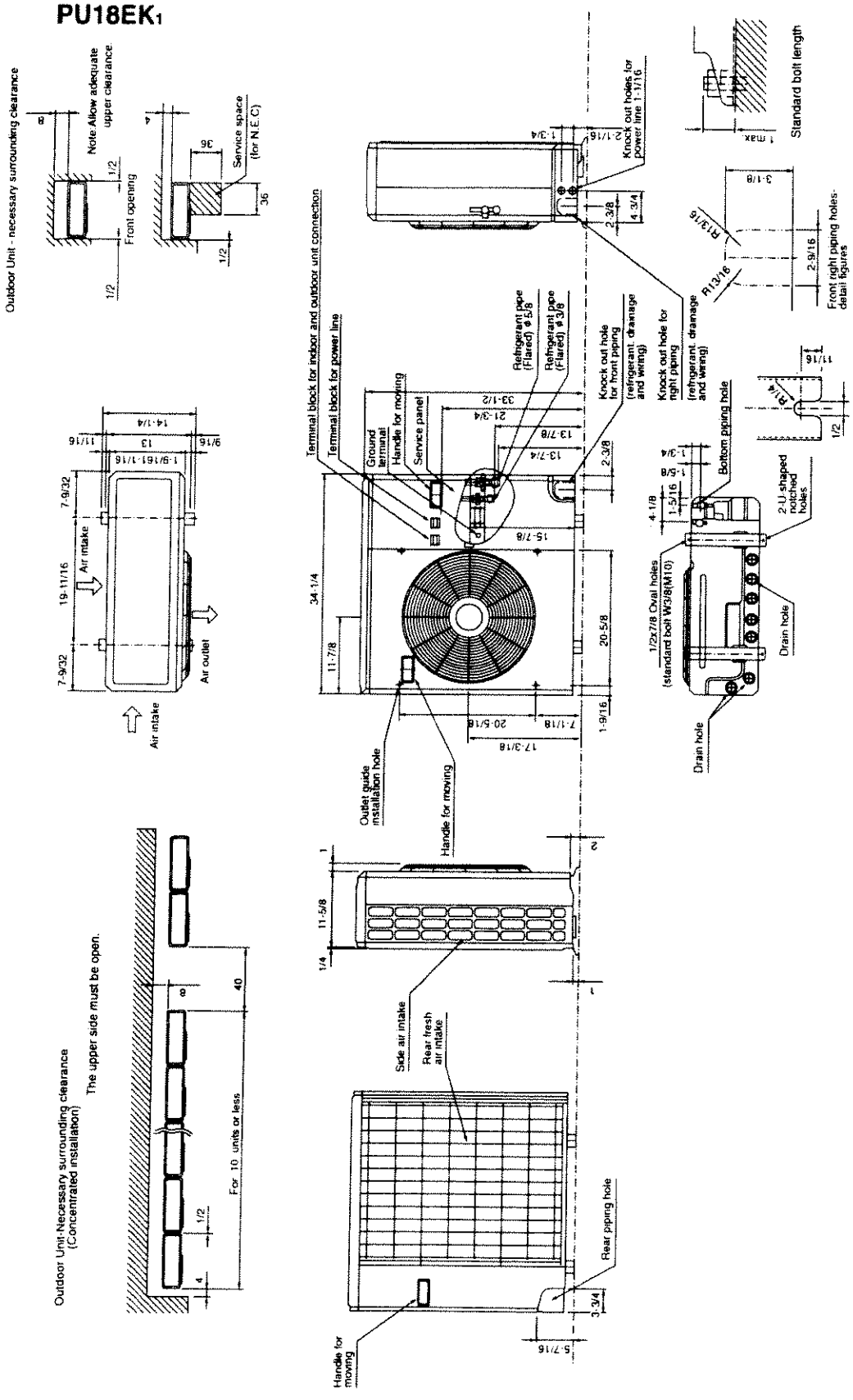
Outdoor Unit PU12EK

Unit : inch



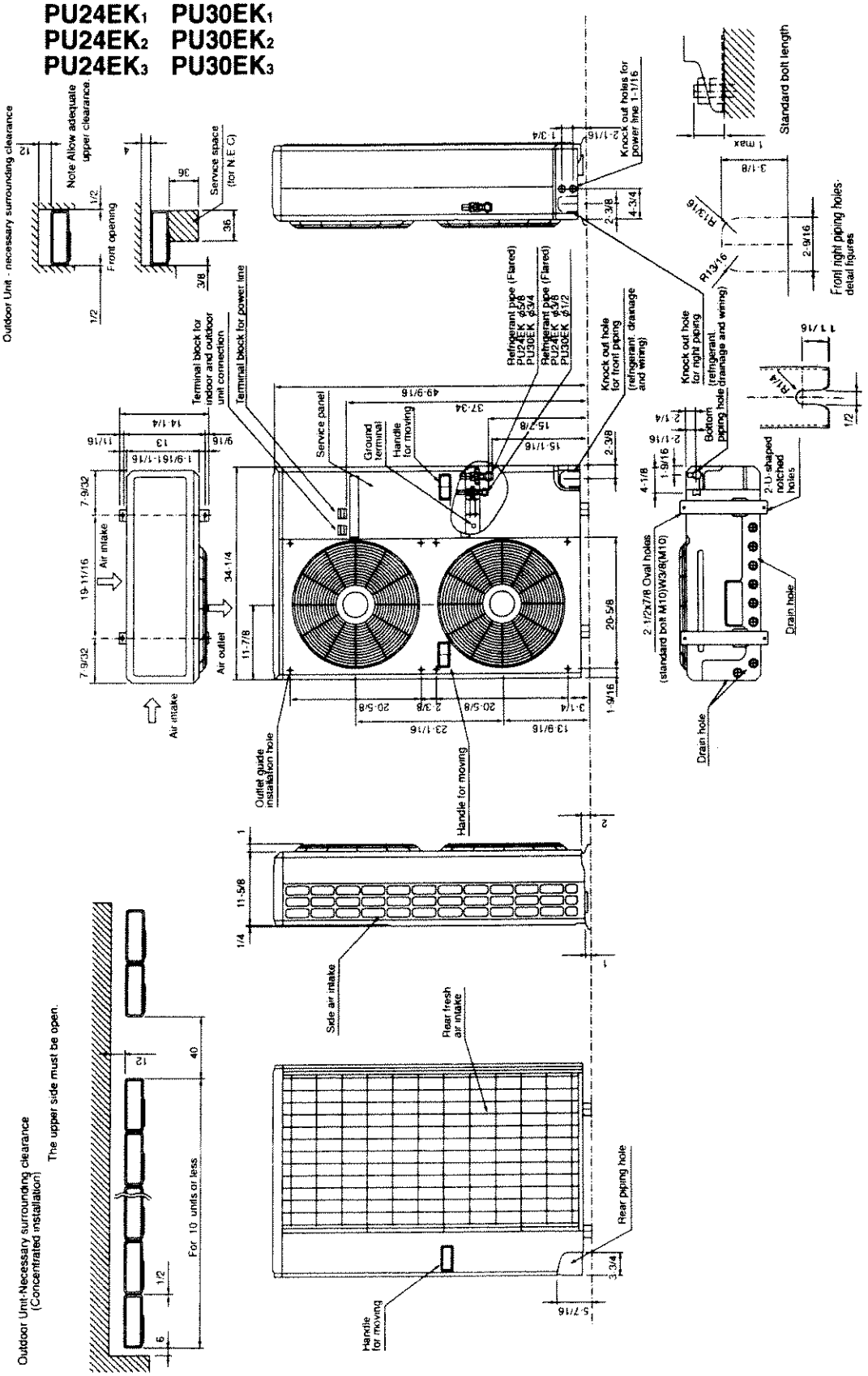
Outdoor Unit PU18EK
PU18EK1

Unit : inch



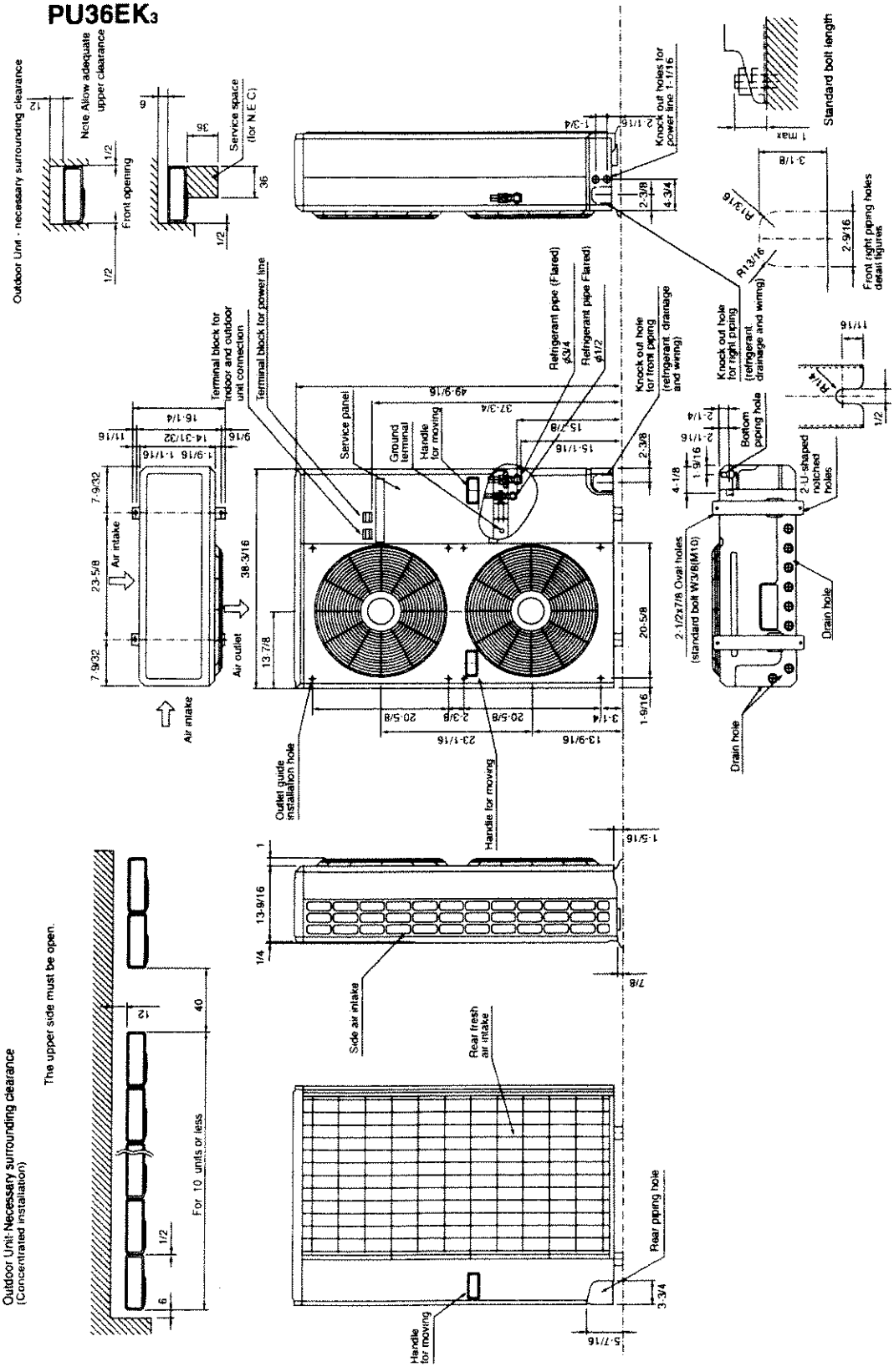
Outdoor Unit PU24EK PU30EK
PU24EK$_1$ PU30EK$_1$
PU24EK$_2$ PU30EK$_2$
PU24EK$_3$ PU30EK$_3$

Unit : inch



Outdoor Unit PU36EK PU42EK2 PU42EK7
PU36EK1 PU42EK21 PU42EK71
PU36EK2 PU42EK72
PU36EK3

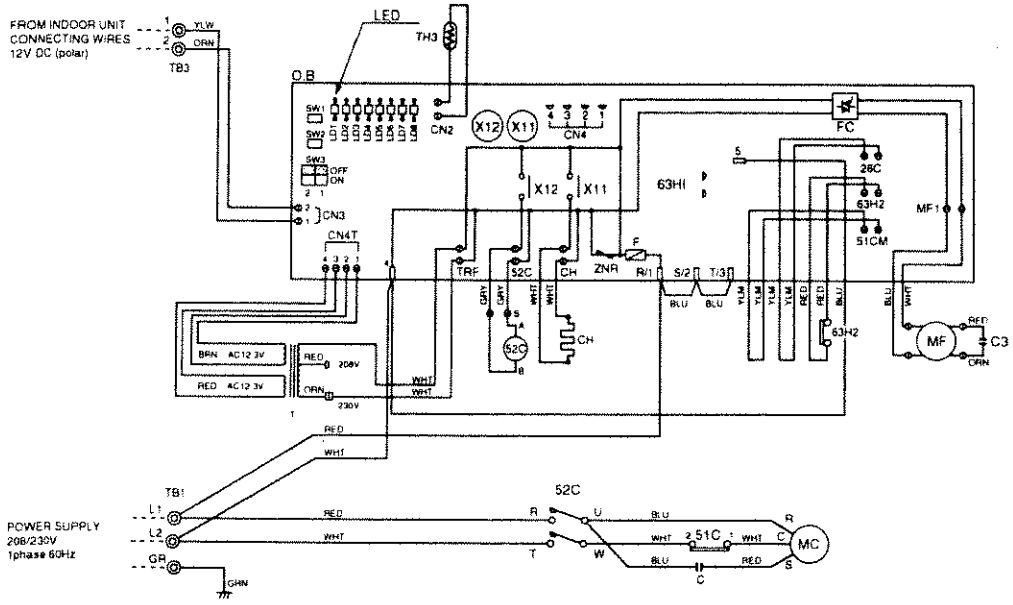
Unit : inch



8 WIRING DIAGRAM

MODEL : PU12EK PU18EK1

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C	COMPRESSOR CAPACITOR	LD1 - LD8	LED <CHECK, SERVICE>	TH3	OUTDOOR COIL THERMISTOR
C3	FAN CAPACITOR	MC	COMPRESSOR	X11 <O. B>	CRANKCASE HEATER RELAY
CH	CRANKCASE HEATER	MF	OUTDOOR FAN MOTOR (INNER THERMOSTAT)	X12 <O. B>	COMPRESSOR RELAY
CN3<O. B>	CONNECTING WIRES INDOOR/OUTDOOR CONNECTOR	O. B	OUTDOOR CONTROLLER BOARD	ZNR <O. B>	VARISTOR
		SW1, 2, 3<O. B>	SELECT SWITCH <CHECK, SERVICE>	52C	CONTACTOR
CN4T<O. B>	TRANSFORMER CONNECTOR	T	TRANSFORMER	63H2	HIGH PRESSURE SWITCH <PROTECT>
		FC <O. B>	FAN CONTROLLER	TB1	POWER SUPPLY TERMINAL BLOCK
		F <O. B>	FUSE <6A>	TB3	CONNECTING WIRES INDOOR/OUTDOOR TERMINAL BLOCK
				51C	OVERCURRENT RELAY



Main functions of LED (when both No. 1 and 2 of SW3 are "OFF")

LED NO.	Output display (light)	Check display (flush)
LD1	Compressor indoor command	—
LD2	—	—
LD3	—	TH3 short / open
LD4	Compressor ON	63H2 functions
LD5	Outdoor fan ON	—
LD6	—	—
LD7	—	TH3 overheat protection
LD8	Crankcase heater ON	Defective input

NOTES : If the operation stops to function of the protection device, the check display flashes.

How to use SW1 and 2

- Pressing SW1 erases the past check contents loaded on the micro-computer.
- The output display (light) remains during operation but pressing SW2 displays the past check contents in flashing mode. Pressing the switch again returns to output display (light).

CAUTION FOR SERVICING

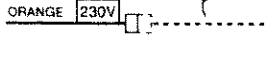
- The connector marked S is to turn the compressor ON-OFF during servicing. The compressor stops by disconnecting the white connector as shown at the right.

* White connector

CAUTION FOR POWER SUPPLY WIRING

- Since LD8 lights when normal power is turned "ON", check the power supply with the "ON" or "OFF" LD8.
- Since the indoor transformer (T) is connected with 230V power, if 208V power is used, change the wiring connection in the following Procedure.

* When power Supply is 208V

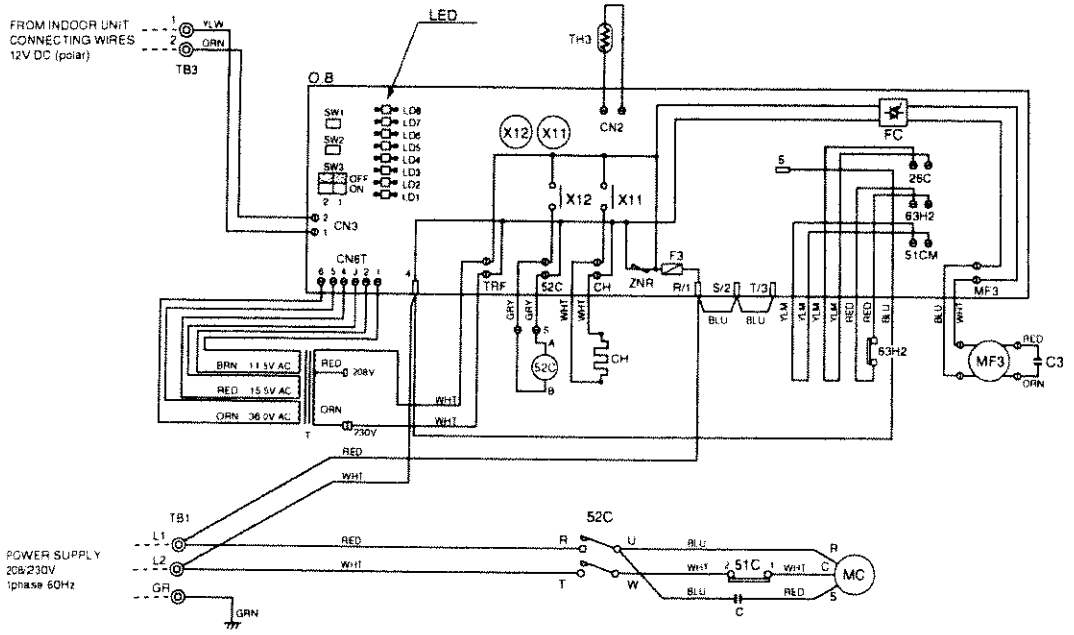


CAUTION FOR INDOOR AND OUTDOOR CONNECTING WIRES

- Since the indoor and outdoor connecting wires has polarity, make sure to connect the same terminal numbers (1, 2) for indoor and outdoor units.

MODELS : PU18EK

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C	COMPRESSOR CAPACITOR	LD1 ~ LD8	LED <CHECK, SERVICE>	TH3	OUTDOOR COIL THERMISTOR
C3	FAN CAPACITOR	MC	COMPRESSOR	X11 <O. B>	CRANKCASE HEATER RELAY
CH	CRANKCASE HEATER	MF3	OUTDOOR FAN MOTOR (INNER THERMOSTAT)	X12 <O. B>	COMPRESSOR RELAY
CN3<O. B>	CONNECTING WIRES INDOOR/OUTDOOR CONNECTOR	O. B	OUTDOOR CONTROLLER BOARD	ZNR <O. B>	VARISTOR
		SW1, 2, 3<O. B>	SELECT SWITCH <CHECK, SERVICE>	52C	CONTACTOR
CN6T<O. B>	TRANSFORMER CONNECTOR	T	TRANSFORMER	63H2	HIGH PRESSURE SWITCH <PROTECT>
		FC <O. B>	FAN CONTROLLER	TB1	POWER SUPPLY TERMINAL BLOCK
		F3 <O. B>	FUSE <6A>	TB3	CONNECTING WIRES INDOOR/OUTDOOR TERMINAL BLOCK
				51C	OVERCURRENT RELAY



Main functions of LED (when both No. 1 and 2 of SW3 are "OFF")

LED NO.	Output display (light)	Check display (flush)
LD1	Compressor indoor command	—
LD2	—	—
LD3	—	Pipe temperature sensor short / open
LD4	Compressor ON	63H2 functions
LD5	Outdoor fan ON	—
LD6	—	—
LD7	—	TH3 overheat protection
LD8	Crankcase heater ON	Defective input

NOTES : If the operation stops to function of the protection device, the check display flashes.

How to use SW1 and 2

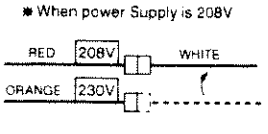
- Pressing SW1 erases the past check contents loaded on the micro-computer.
- The output display (light) remains during operation but pressing SW2 displays the past check contents in flashing mode. Pressing the switch again returns to output display (light).

CAUTION FOR SERVICING

- The connector marked -S- is to turn the compressor ON-OFF during servicing. The compressor stops by disconnecting the white connector as shown at the right.

CAUTION FOR POWER SUPPLY WIRING

- Since LD8 lights when normal power is turned "ON", check the power supply with the "ON" or "OFF" LD8.
- Since the indoor transformer (T) is connected with 230V power, if 208V power is used, change the wiring connection in the following Procedure.

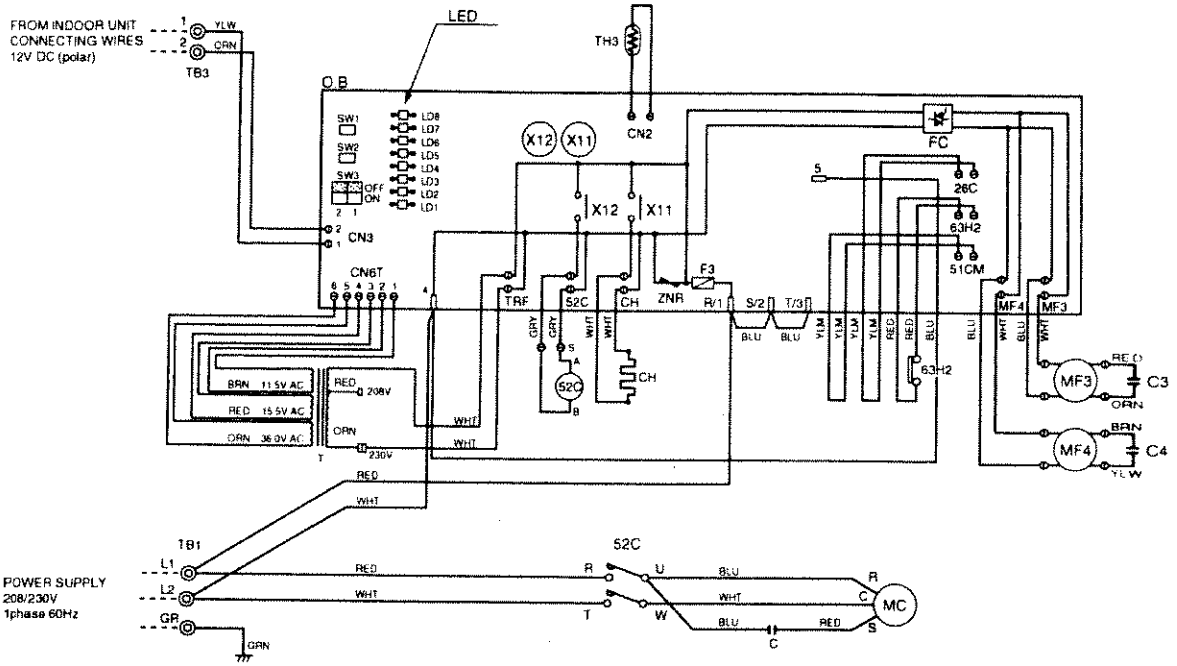


CAUTION FOR INDOOR AND OUTDOOR CONNECTING WIRES

- Since the indoor and outdoor connecting wires has polarity, make sure to connect the same terminal numbers (1, 2) for indoor and outdoor units.

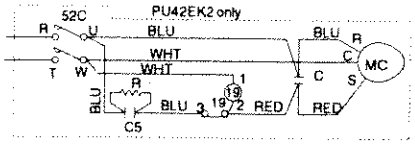
MODELS : PU24EK PU30EK PU36EK PU42EK2

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C	COMPRESSOR CAPACITOR	LD1-LD8	LED <CHECK, SERVICE>	TH3	OUTDOOR COIL THERMISTOR
C3, 4	FAN CAPACITOR	MC	COMPRESSOR (INNER THERMOSTAT)	X11 <O. B>	CRANKCASE HEATER RELAY
CH	CRANKCASE HEATER	MF3, 4	OUTDOOR FAN MOTOR (INNER THERMOSTAT)	X12 <O. B>	COMPRESSOR RELAY
CN3<O. B>	CONNECTING WIRES INDOOR/OUTDOOR CONNECTOR	O. B	OUTDOOR CONTROLLER BOARD	ZNR <O. B>	VARISTOR
		SW1, 2, 3<O. B>	SELECT SWITCH <CHECK, SERVICE>	52C	CONTACTOR
CN6T<O. B>	TRANSFORMER CONNECTOR	T	TRANSFORMER	63H2	HIGH PRESSURE SWITCH <PROTECT>
FC <O. B>	FAN CONTROLLER	TB1	POWER SUPPLY TERMINAL BLOCK	R	RESISTOR
F3<O. B>	FUSE <6A>	TB3	CONNECTING WIRES INDOOR/OUTDOOR TERMINAL BLOCK	C5	COMPRESSOR START CAPACITOR
				19	COMPRESSOR START RELAY



Main functions of LED (when both No. 1 and 2 of SW3 are "OFF")

LED NO.	Output display (light)	Check display (flush)
LD1	Compressor indoor command	—
LD2	—	—
LD3	—	TH3 short / open
LD4	Compressor ON	63H2 functions
LD5	Outdoor fan ON	—
LD6	—	—
LD7	—	TH3 overheat protection
LD8	Crankcase heater ON	Defective input



NOTES : If the operation stops to function of the protection device, the check display flashes.

How to use SW1 and 2

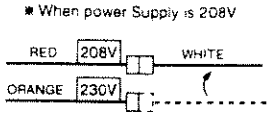
- Pressing SW1 erases the past check contents loaded on the micro-computer.
- The output display (light) remains during operation but pressing SW2 displays the past check contents in flashing mode. Pressing the switch again returns to output display (light).

CAUTION FOR SERVICING

- The connector marked -S- is to turn the compressor ON-OFF during servicing. The compressor stops by disconnecting the white connector as shown at the right.

CAUTIONS FOR POWER SUPPLY WIRING

- Since LD8 lights when normal power is turned "ON", check the power supply with the "ON" or "OFF" LD8.
- Since the indoor transformer (T) is connected with 230V power, if 208V power is used, change the wiring connection in the following Procedure.

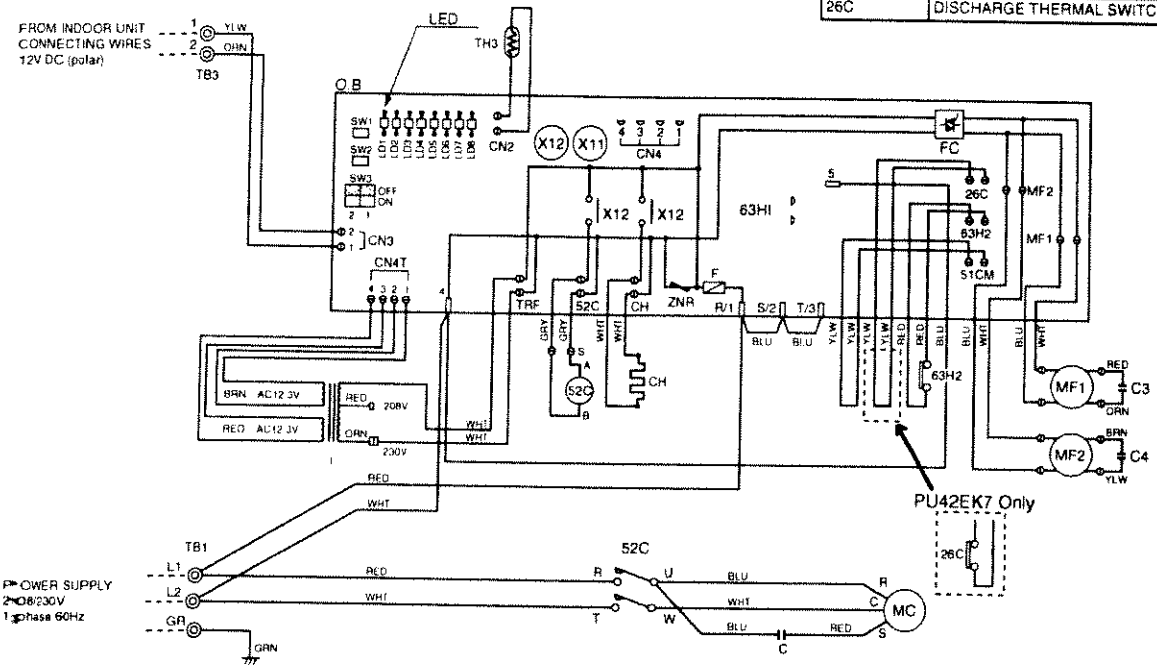


CAUTION FOR INDOOR AND OUTDOOR CONNECTING WIRES

- Since the indoor and outdoor connecting wires has polarity, make sure to connect the same terminal numbers (1, 2) for indoor and outdoor units.

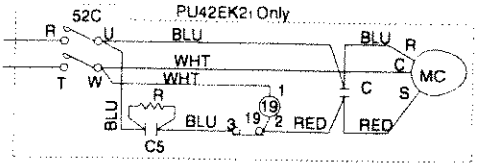
MODELS : PU24EK1 PU30EK1 PU36EK1 PU42EK21 PU42EK7
PU24EK2 PU30EK2 PU36EK2
PU24EK3 PU30EK3 PU36EK3

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C	COMPRESSOR CAPACITOR	LD1~LD8	LED <CHECK, SERVICE>	TH3	OUTDOOR COIL THERMISTOR
C3, 4	FAN CAPACITOR	MC	COMPRESSOR (INNER THERMOSTAT)	X11 <O. B>	CRANKCASE HEATER RELAY
CH	CRANKCASE HEATER	MF1, 2	OUTDOOR FAN MOTOR (INNER THERMOSTAT)	X12 <O. B>	COMPRESSOR RELAY
CN3<O. B>	CONNECTING WIRES INDOOR/OUTDOOR CONNECTOR	O. B	OUTDOOR CONTROLLER BOARD	ZNR <O. B>	VARISTOR
		SW1, 2, 3<O. B>	SELECT SWITCH <CHECK, SERVICE>	52C	CONTACTOR
CN4T<O. B>	TRANSFORMER CONNECTOR	T	TRANSFORMER	63H2	HIGH PRESSURE SWITCH <PROTECT>
FC <O. B>	FAN CONTROLLER	TB1	POWER SUPPLY TERMINAL BLOCK	R	RESISTOR
F <O. B>	FUSE <6A>	TB3	CONNECTING WIRES INDOOR/OUTDOOR TERMINAL BLOCK	C5	COMPRESSOR START CAPACITOR
				19	COMPRESSOR START RELAY
				26C	DISCHARGE THERMAL SWITCH



Main functions of LED (when both No. 1 and 2 of SW3 are "OFF")

LED NO.	Output display (light)	Check display (flush)
LD1	Compressor indoor command	—
LD2	—	—
LD3	—	TH3 short / open
LD4	Compressor ON	63H2 functions
LD5	Outdoor fan ON	—
LD6	—	26C functions (PU42EK7)
LD7	—	TH3 overheat protection
LD8	Crankcase heater ON	Defective input



NOTES :If the operation stops to function of the protection device, the check display flashes.

How to use SW1 and 2

- Pressing SW1 erases the past check contents loaded on the micro-computer.
- The output display (light) remains during operation but pressing SW2 displays the past check contents in flashing mode. Pressing the switch again returns to output display (light).

CAUTION FOR SERVICING

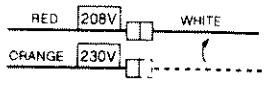
- The connector marked S is to turn the compressor ON-OFF during servicing. The compressor stops by disconnecting the white connector as shown at the right.

* White connector

CAUTIONS FOR POWER SUPPLY WIRING

- Since LD8 lights when normal power is turned "ON", check the power supply with the "ON" or "OFF" LD8.
- Since the indoor transformer (T) is connected with 230V power, if 208V power is used, change the wiring connection in the following Procedure.

* When power Supply is 208V

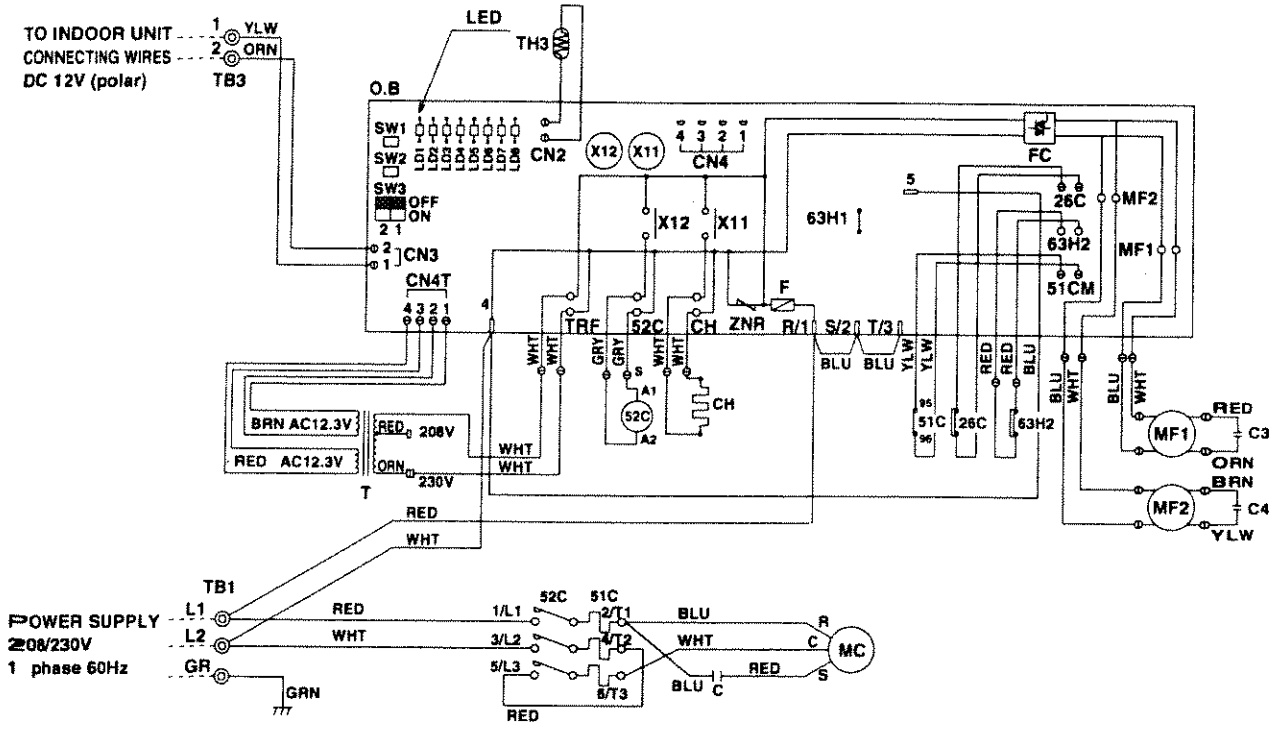


CAUTION FOR INDOOR AND OUTDOOR CONNECTING WIRES

- Since the indoor and outdoor connecting wires has polarity, make sure to connect the same terminal numbers (1, 2) for indoor and outdoor units.

MODEL : PU42EK7$_1$ PU42EK7$_2$

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN3<O.B>	CONNECTOR (CONNECTING WIRES INDOOR/OUTDOOR)	LD1~LD8	LED(CHECK, SERVICE)	TH3	THERMISTOR FOR PIPE TEMPERATURE (32°F/15kΩ,77°F/5.4kΩ)
CN4T<O.B>	CONNECTOR(TRANSFORMER)	MC	COMPRESSOR MOTOR (INNER THERMOSTAT)	X11<O.B>	AUXILIARY RELAY FOR CH
CH	CRANKCASE HEATER	MF1, 2	FAN MOTOR (INNER THERMOSTAT)	X12<O.B>	AUXILIARY RELAY FOR MC
C3, 4	RUN CAPACITOR FOR MF1,2	O.B	OUTD00R CONTROLLER BOARD	ZNR<O.B>	VARISTOR
C	RUN CAPACITOR FOR MC	SW1-2-3<O.B>	SELECT SWITCH(CHECK,SERVICE)	51C	THERMAL RELAY
FC<O.B>	FAN CONTROLLER	T	TRANSFORMER	52C	MAGNETIC CONTACTOR FOR MC
F<O.B>	FUSE(6A/250V)	TB1	TERMINAL BLOCK(POWER SUPPLY)	63H2	HIGH PRESSURE SWITCH(PROTECT)
		TB3	TERMINAL BLOCK (CONNECTING WIRES INDOOR/OUTDOOR)	26C	DISCHARGE THERMAL SWITCH



Main functions of LED (When both No.1 and 2 of SW3 are"OFF")

LED NO.	Output display(light)	Check display(flush)
LD1	Compressor indoor command	——
LD2	——	——
LD3	——	Pipe temperature sensor short/open
LD4	Compressor ON	63H2 functions
LD5	Outdoor fan ON	51C functions
LD6	——	26C functions
LD7	——	TH3 overheat protection
LD8	Crankcase heater ON	Defective input

NOTE: If the operation stops to function of the protection device, the check display flushes.

How to use SW1 and 2

- Pressing SW1 erases the past check contents loaded on the microcomputer.
- The output display (light) remains during operation but pressing SW2 displays the past check contents in flushing mode. Pressing the switch again returns to output display(light).

CAUTION FOR SERVICING

- The connector marked S for 52C is to turn the compressor ON-OFF during servicing. The compressor stops by disconnecting the white connector as shown at the right.

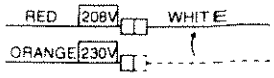
White connector

CAUTIONS FOR POWER SUPPLY WIRING

- Since LD8 lights when normal power is turned"ON", check the power supply with the"ON"or"OFF"LD8.

※ Since the indoor transformer(T) is connected with 230V power, if 208V power is used, change the wiring connection as shown at the right.

※When Power Supply is 208V

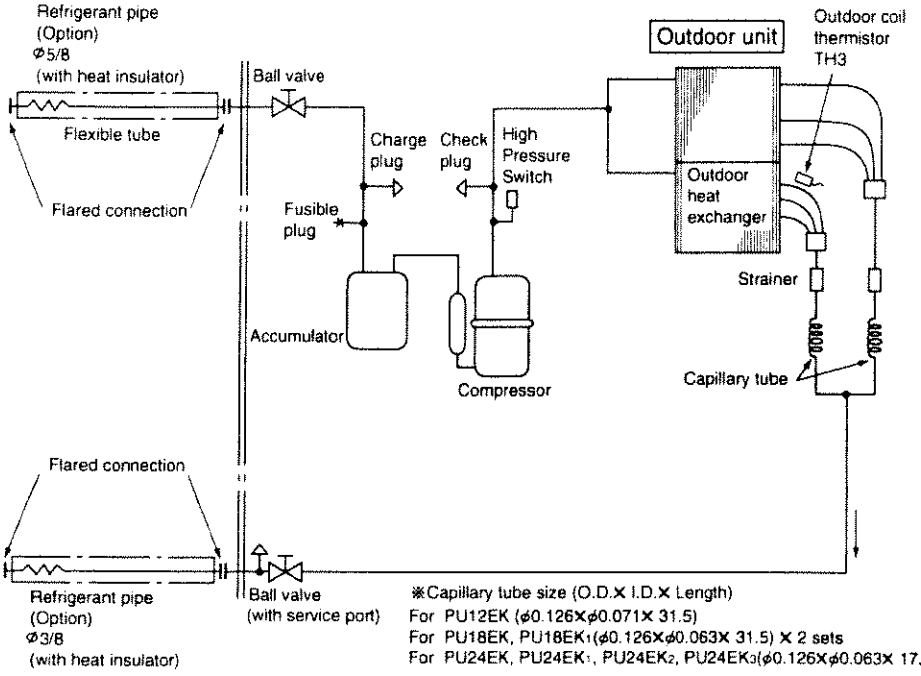


CAUTION FOR INDOOR AND OUTDOOR CONNECTING WIRES

- Since the indoor and outdoor connecting wires has polarity, make sure to connect the same terminal numbers(1,2)for indoor and outdoor units.

9 REFRIGERANT SYSTEM DIAGRAM

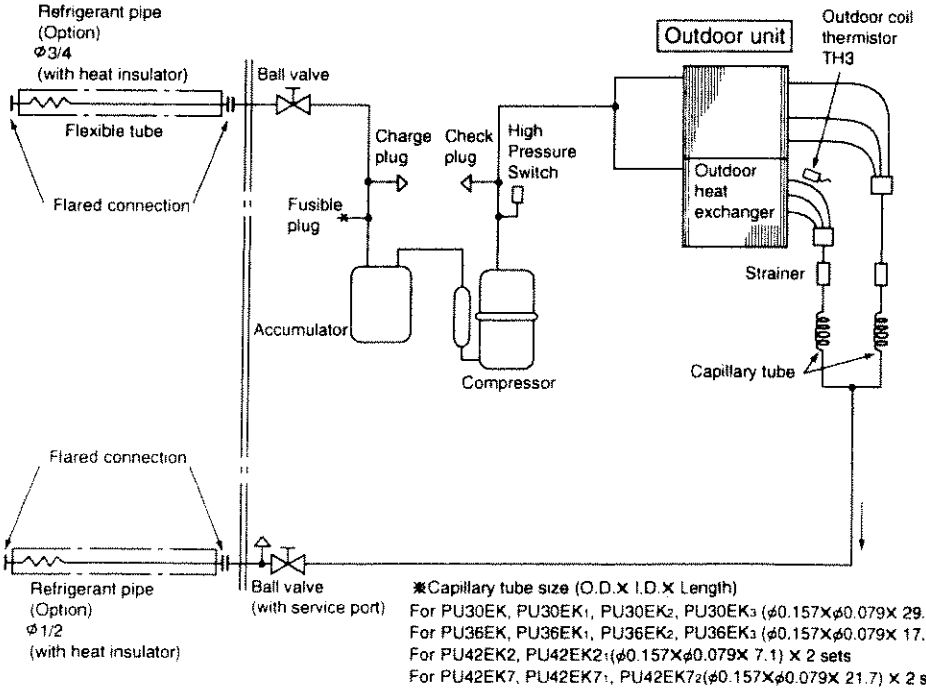
PU12EK PU18EK PU24EK
PU18EK$_1$ PU24EK$_1$
PU24EK$_2$
PU24EK$_3$



※Capillary tube size (O.D.× I.D.× Length)
For PU12EK (φ0.126×φ0.071× 31.5)
For PU18EK, PU18EK$_1$(φ0.126×φ0.063× 31.5) × 2 sets
For PU24EK, PU24EK$_1$, PU24EK$_2$, PU24EK$_3$(φ0.126×φ0.063× 17.3) × 2 sets

→ Flow of refrigerant

PU30EK PU36EK PU42EK2 PU42EK7
PU30EK$_1$ PU36EK$_1$ PU42EK2$_1$ PU42EK7$_1$
PU30EK$_2$ PU36EK$_2$ PU42EK7$_2$
PU30EK$_3$ PU36EK$_3$



※Capillary tube size (O.D.× I.D.× Length)
For PU30EK, PU30EK$_1$, PU30EK$_2$, PU30EK$_3$ (φ0.157×φ0.079× 29.1) × 2 sets
For PU36EK, PU36EK$_1$, PU36EK$_2$, PU36EK$_3$ (φ0.157×φ0.079× 17.7) × 2 sets
For PU42EK2, PU42EK2$_1$(φ0.157×φ0.079× 7.1) × 2 sets
For PU42EK7, PU42EK7$_1$, PU42EK7$_2$(φ0.157×φ0.079× 21.7) × 2 sets

→ Flow of refrigerant

NOTE :The symbol φ indicates the diameter.

10 MICROPROCESSOR CONTROL

OUTDOOR MICROPROCESSOR CONTROL

1. Protection function

(1) As soon as a reversed phase, an open phase, or a P. C. board trouble is sensed, the operation stops and the check code is displayed by LED on the outdoor controller board.

(2) When a protection function such as high pressure switch and overcurrent relay works for the first time, the operation stops and restarts after 3-minute time delay mode. When the second protection function works, the operation stops and the check code is displayed by LED. This condition continues until the outdoor unit receives OFF command from the indoor controller board. Check code indication continues until the outdoor unit receives the ON command from the indoor controller board.

(3) The second protection function is not necessary to be the same as the first one. The content of the second protection function is loaded in the memory, which is cleared when SW1 turns to ON or the next check mode starts.

2. Control by outdoor coil thermistor

(1) Unit control

Outdoor coil temperature range for control is from -40°F to 194°F. When reading 194°F or above, the outdoor coil thermistor is regarded as short-circuit. When reading -40°F or below, the outdoor coil thermistor is regarded as open-circuit. An open circuit is not sensed for the first 7 min. after the compressor start up, but is sensed during defrosting operation or for the first 10 seconds after the compressor start-up.

(2) Target temperature of outdoor coil temperature

Fan rotational frequency is controlled so that the outdoor coil temperature keeps 95°F ± 4°F.

3. Unit operation control

The compressor receives signal from the indoor unit and make the outdoor unit start or stop.

4. Fan control

Fan rotational frequency is phase-controlled so that the outdoor coil temperature reaches the target temperature. This control enables cooling operation even if the outdoor temperature is low. Fan rotational frequency is adjusted by fan output. Fan output is divided into 256 steps from 0 to 255 and is controlled every 30 seconds.

(1) Initial setting

A. When power is turned to on, or when the compressor restarts after interval of 30 minutes or more :
- If the outdoor coil thermistor reads 46°F or below, the fan output step becomes 100.
- If the outdoor coil thermistor reads above 46°F, the fan output step becomes 200.

B. When the compressor restarts within 30 minutes after stop, the fan output step is the same as the fan output before the compressor stops.

C. When the operation mode is changed within 30 minutes after the compressor stop, the fan output step becomes 100.

D. When the operation mode is changed after the compressor interval of more than 30 minutes, the fan output step is the same as described in A.

(2) For the first 2 minutes after the compressor start-up, the fan operates at the initial setting output, and then every other 30 seconds, the fan output is adjusted depending on the difference between the outdoor coil temperature and the target temperature. But as soon as the outdoor coil temperature becomes 122°F or above, the fan output step becomes 255.

(3) When the outdoor coil thermistor reads 122°F or above, the fan output step becomes 255.

(4) When the high pressure switch (63H1) functions, the fan output step becomes 255. After that, when the switch returns, the fan control returns to the normal control.

5 . Crankcase heater control

(1) With jumper wire J3

The crankcase heater is ON from the power is turned to on till the compressor starts, and turns to ON 1 hour after the compressor stop.

(2) Without jumper wire J3

The crankcase heater is ON from the power is turned to on till the compressor starts, and repeats ON/OFF on a 1-hour schedule.

6. Fixed fan-output

While the compressor is operating and the fan output step is indicated by LED, pushing SW2 fixes the fan output of that time. The fixed fan-output can be released when either of the following conditions is satisfied.

① SW2 is pushed again.
② SW3 setting is changed.
③ The compressor stops.

7. Function of switches on the outdoor controller board

SW 1 : Clears the check code memory (push-button switch)
SW2 : Switches the output state indication and the check code display (push-button switch)
SW3-1and3- 2 : Switches the output state indication items (dip-switch)
For further information, please refer to page 21.

8. Operation during the power-on-reset state

(1) When the circuit breaker is turned to ON, the microprocessor enters the power-on-reset state, which continues until the direct current for the microprocessor control reaches 12V.
Then the microprocessor starts operation in the following order.
① Each I/O port clearance
② Function input
Function depends on jumper wires set beforehand in the factory.

Jumper wire	Function	With jumper wire	Without jumper wire
J1	Reversed phase sensor	Sensed	Not sensed
J2	Not applied for series PU		
J3	Crankcase heater control	Refer to **5** (1) on page 19.	Refer to **5** (2) on page 19.
J4	Target temperature of outdoor coil temperature	86°F For heat pump units	95°F For cooling unit

③ Check for a reversed phase
④ Check for an open phase (with J1)
⑤ 50/60Hz judgment
⑥ EEPROM data loading (check mode, and total time of compressor operation)
⑦ Coil temperature initial input

(2) If an open phase or a reversed phase is sensed, LED blinks every other second.
NOTE
* If power is not supplied to the transformer and the microprocessor, the microprocessor does not work and can sense neither a reversed phase nor an open phase.
* If a contact point of protective device such as the high pressure switch has already been opened in the power-on-reset state, it is regarded as an open phase.
In this case, all LED are OFF.

9. 100% fan output

Fan output is fixed to 255 (100%) by shorting CN22. However, the fan stops during compressor OFF or defrosting operation. Open circuit of CN22 enables the fan control to start.

10. Time shortening

Short circuit of CN21 shortens the time listed below.
1) Fan control period : 30 sec. → 3 sec.
2) Three-minute time delay function : 3 min. → 3 sec.
3) Compressor ON/OFF time for bypass valve ON/OFF : 30 min. → 30 sec.
4) Compressor ON time to start other functions : x min. → x sec.

11 TROUBLESHOOTING

1. SERVICE DATA INDICATION BY SWITCHES ON OUTDOOR CONTROLLER BOARD

Setting dip switches SW2 and SW3 on the outdoor controller board enables LED to show the output state and check code. Output state is shown by LED lighting, and check code by blinking.

SW1 : Turning SW1 ON clears the check code. If SW1 is turned ON while the check code is blinking , the indication changes to output state indication.

NOTE : SW1 is usually available independent of SW3 setting. As an exception, when the check code shows a reversed phase or an open phase during the power-on-reset state, SW1 is not available.

SW2 : SW2 is turned ON by pressing, and OFF by releasing.

When SW3-1 and SW3-2 are OFF, pressing SW2 changes indication between output state and check code alternately.

When SW2 is turned On with SW3-1 OFF and SW3-2 ON, the compulsory defrosting starts.

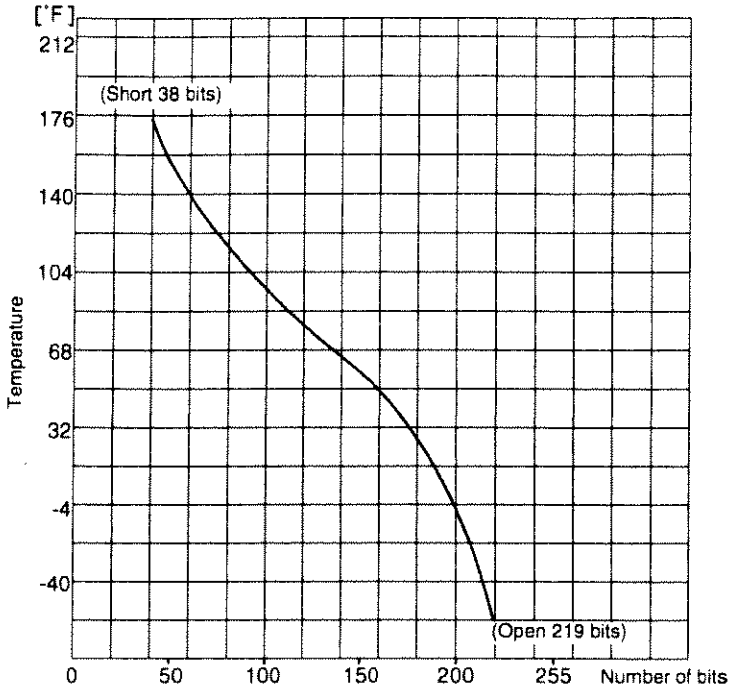
SW3 : Output state indication items depend on the combination of SW3-1 ON/OFF and SW3-2 ON/OFF.

Changed alternately by pressing SW2.

	Check code	Output state	Outdoor coil temperature (bit)	Fan output step (bit)	Total time of compressor operation(Hr)
SW3-1	OFF	OFF	OFF	ON	ON
SW3-2	OFF	OFF	ON	OFF	ON
LED	Blinking	Lighting			
LD1	Reversed phase	Compressor ON command from indoor controller	1	1	256
LD2	Open phase	Heating operation command from indoor controller	2	2	512
LD3	Outdoor coil thermistor is abnomal.	During 63H1 function	4	4	1024
LD4	63H2 function	Compressor ON	8	8	2048
LD5	51C function	Outdoor fan ON	16	16	4096
LD6	26C function	4-way valve ON (HEAT PUMP Only)	32	32	8192
LD7	Overheat protection	Bypass valve ON (HEAT PUMP Only)	64	64	16384
LD8	Input circuit on controller board is abnormal	Crankcase heater ON	128	128	32768

1-1 Outdoor coil temperature

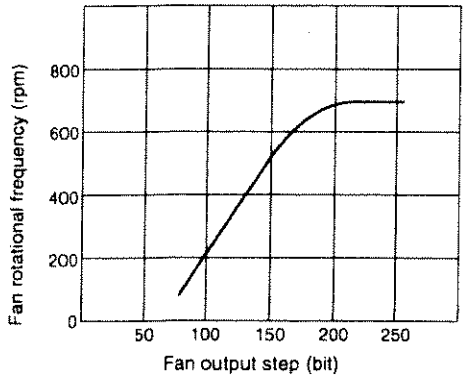
To obtain data on the outdoor coil temperature, add the number of bits of lighting LEDs, and see the graph to find the temperature.



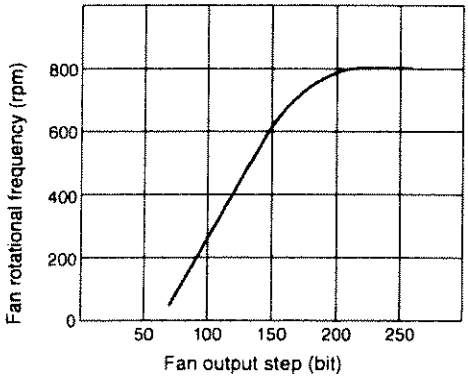
1-2 Fan output step

To obtain data on the fan output step, add the number of bits of lighting LEDs, and see the graph below to find the fan rotational frequency.

① PU12EK PU24EK PU30EK
PU24EK$_1$ PU30EK$_1$
PU24EK$_2$ PU30EK$_2$
PU24EK$_3$ PU30EK$_3$



② PU18EK PU36EK PU42EK2 PU42EK7
PU18EK$_1$ PU36EK$_1$ PU42EK2$_1$ PU42EK7$_1$
PU36EK$_2$ PU42EK7$_2$
PU36EK$_3$



1-3 Total time of compressor operation

Compressor operation time is indicated in 256 hour units. To obtain the compressor operation time, add the hours of lighting LEDs. During the compressor operation time indication, SW2 is not available.

1-4 Check code indication

- When a protection function works for the first time during operation, the operation stops and restarts after the 3-minutes time delay mode. When the protection function works again, the operation stops. (Check mode) When both SW3-1 and SW3-2 are OFF, the check code is indicated.
- If the outdoor controller board receives the compressor ON command from the indoor controller board during check mode the indication changes to output state indication.
- By pressing SW2 during normal operation. operation will continue.
- The latest check code is indicated.

2. TROUBLESHOOTING ACCORDING TO CHECK CODE

Blinking LED	Diagnosis of malfunction	Cause	Check point
LD1	Reversed phase	This model does not have this function.	No need to be checked.
LD2	Open phase	This model does not have this function.	No need to be checked.
LD3	Outdoor coil thermistor is abnormal. (Open circuit or short circuit)	● Outdoor coil thermistor is broken. ● Thermistor was connected incorrectly.	● Measure the resistance of the thermistor. ● Check the thermistor. If normal, replace the outdoor controller board.
LD4	High pressure switch (63H2) function	● 63H2 was badly connected. ● 63H2 was working.	● Check 63H2 and the outdoor fan motor. ● Check if refrigerant supply is low. ● Check if air cycle is short-cycled.
LD5	Thermal relay function (PU42EK7)	● 51C is working.	● Check 51C.
LD6	Thermal switch (26C) function (PU42EK7) (PU42EK7₁)	● 26C was connected incorrectly. ● 26C is working.	● Check 26C. ● Check if refrigerant supply is low. ● Check if the capillary tube is clogged.
LD7	Over heat protection	● The thermistor is broken. ● Coil temperature is over 153°F.	● Measure the resistance of the thermistor. ● Check the outdoor fan motor. ● Check if air cycle is short-cycled.
LD8	Input circuit of outdoor controller board is abnormal.	● Pulse input is abnormal.	● Replace the outdoor controller board.

3. WHEN OUTDOOR UNIT DOES NOT WORK

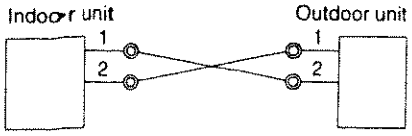
Cause	Check points
1) Indoor/outdoor connecting wires are poorly connected. (Refer to next page.)	1) Check the connecting wires.
2) Power supply is poorly connected.	2) Check the power supply.
3) Connector or transformer is broken.	3) Check connector and transformers.
4) Fuse (6A) in the outdoor controller board is blown.	4) Check the fuse.

4. WRONG WIRING ON SITE

4-1 Between remote controller and indoor unit

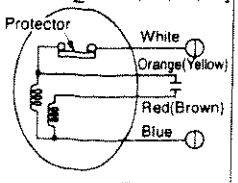
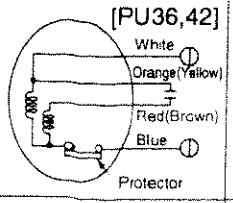
If wire is disconnected between the remote controller and the indoor unit, the POWER ON display does not appear despite turning the power switch ON. The beep sound is not heard, either.

4-2 Phenomena due to wrong wiring between indoor and outdoor units

Wrong wiring	Thermostat	Phenomena
	OFF	The outdoor unit stops.
	ON	Operation stops. 9 minutes later, the check code "P8" appears on the remote controller display.
Disconnect between 1 and 1 or 2 and 2.	OFF	Operation stops.
	ON	9 minutes later, the check code "P8" appears on the remote controller display.

5. HOW TO CHECK THE PARTS

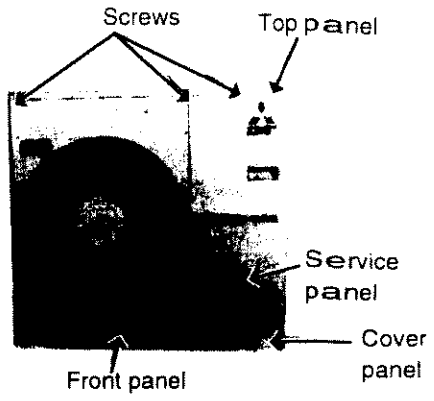
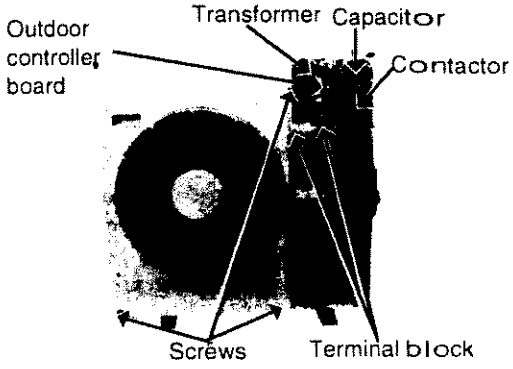
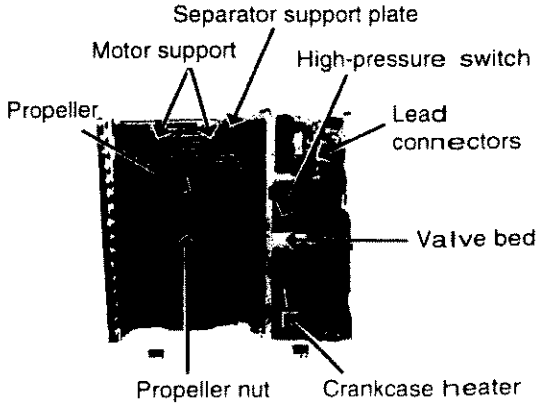
PU12EK PU18EK PU24EK PU30EK PU36EK PU42EK2 PU42EK7
PU18EK$_1$ PU24EK$_1$ PU30EK$_1$ PU36EK$_1$ PU42EK2$_1$ PU42EK7$_1$
PU24EK$_2$ PU30EK$_2$ PU36EK$_2$ PU42EK7$_2$
PU24EK$_3$ PU30EK$_3$ PU36EK$_3$

Parts name	Check points
OUTDOOR COIL THERMISTOR (TH3)	Disconnect the connector then measure the resistance using a tester. (Surrounding temperature 50°F~86°F) Normal: 4.3kΩ~9.6kΩ Abnormal: Open or short
FAN MOTOR(MF,1,2,3,4) [PU12,18,24,30]  [PU36,42] 	Measure the resistance between the terminals using a tester. (Surrounding temperature 68°F) Motor terminal or Relay connector / Normal: PU12,18 — PU24,30 — PU36 — PU42 / Abnormal: Open or short White — Blue: 77.3Ω — 100.2Ω — 73.9Ω — 61.5Ω Blue — Red (Brown): 134.6Ω — 83.8Ω — 118.7Ω — 79.8Ω Protector OPEN : 275±9°F CLOSE : 187±27°F
CRANKCASE HEATER (HC)	Measure the resistance between the terminals using a tester. Normal: PU12,18 — 1920Ω; PU24,30,36,42 — 1340Ω Abnormal: Open or short

12 DISASSEMBLY INSTRUCTIONS

Outdoor unit (PU18EK)

NOTE : All panels are clasped, and should be removed by shifting up and down.

OPERATING PROCEDURE	PHOTOS
1. Electrical parts (1) Remove top panel (3 screws in front, 2 screws in rear) (2) Remove cover panel (1 screw). The panel is anchored by clicks to the side panel. Remove by pulling towards you. (3) Remove cover panel (1 screw). The panel is anchored by clicks on the right and left sides. After removing the screw, pull the panel down and remove it by pulling towards you.	**Photo 1**  **Photo 2** 
2. Fan motor (1) Remove front panel (3 screws). Open the panel to a 45 degree angle and lift to remove. The panel is clasped at three points on the left side. (2) Remove propeller (1 set nut). (3) Remove fan motor (3 screws). Remove lead connector.	**Photo 3** 

OPERATING PROCEDURE

3. Heat Exchanger, Compressor

(1) Remove the rear panel (2 screws in front, 1 screw on the side, 3 screws in the rear). Remove the valve bed, and open the rear panel to the rear to remove.
(2) Remove right side panel (4 screws).
(3) Remove rear guard (3 screws).
(4) Remove separator support plate (4 screws).
(5) Remove motor support (2 screws).
(6) Remove valve bed (5 screws). The valve bed is clasped on the right and left sides. Lift to remove.
(7) Remove the electrical parts box.
Remove the respective connector from high pressure switch, crank case heater, outdoor coil thermistor and fan motor lead.
(8) Remove separator (2 screws).
(9) Remove heat exchanger (2 screws).
Disconnect the welded section of pipe.
(10) Remove compressor (3 set nuts).
Remove the weldment of the compressor suction pipe and discharge pipe.

PHOTOS

Photo 4

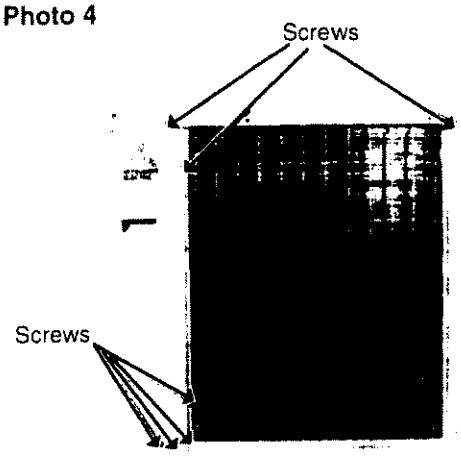


Photo 5

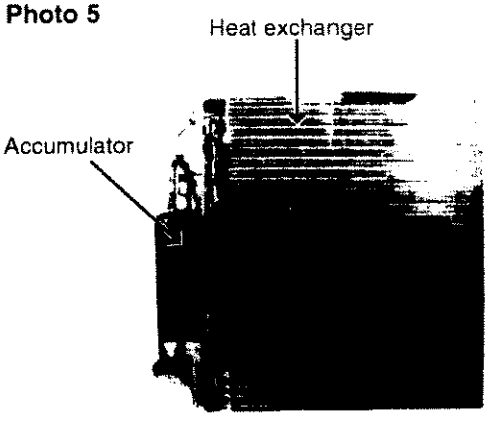
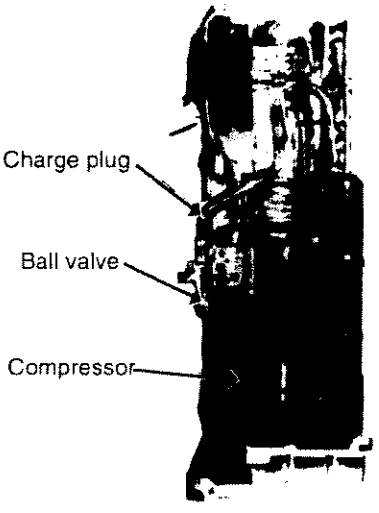
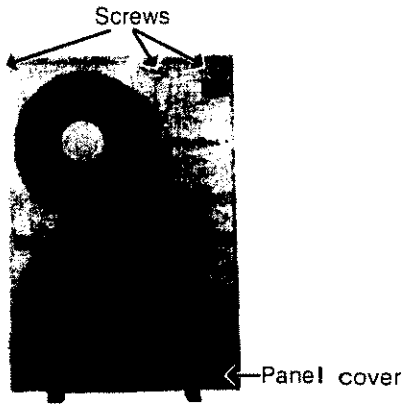
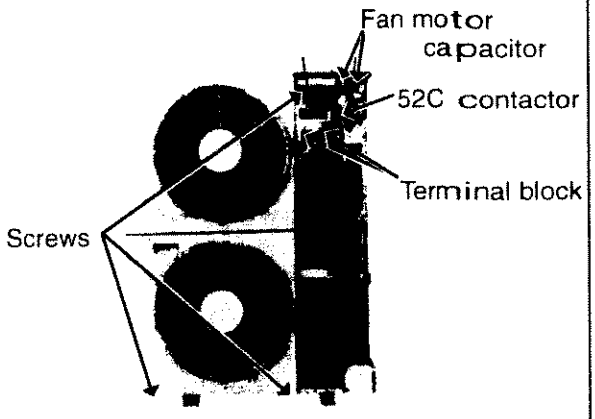
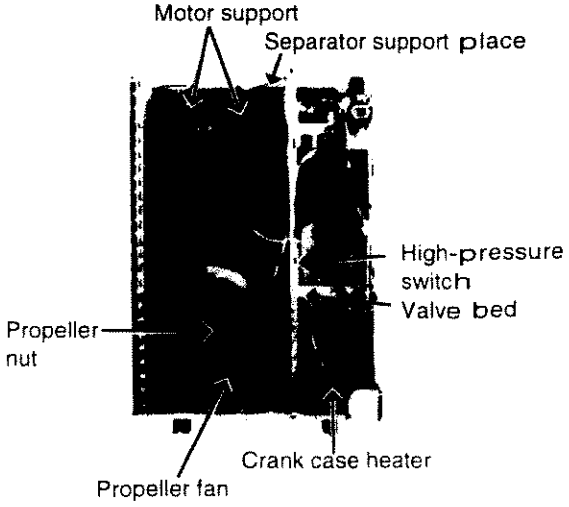


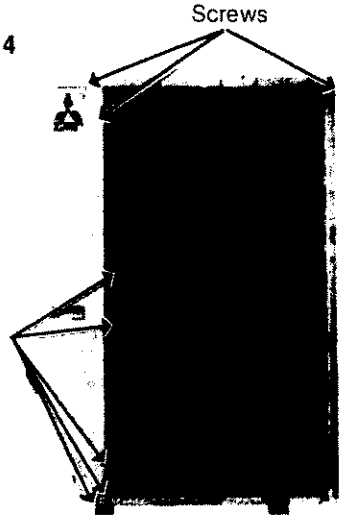
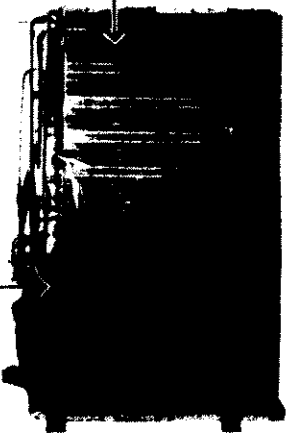
Photo 6



Outdoor unit (PU24EK)

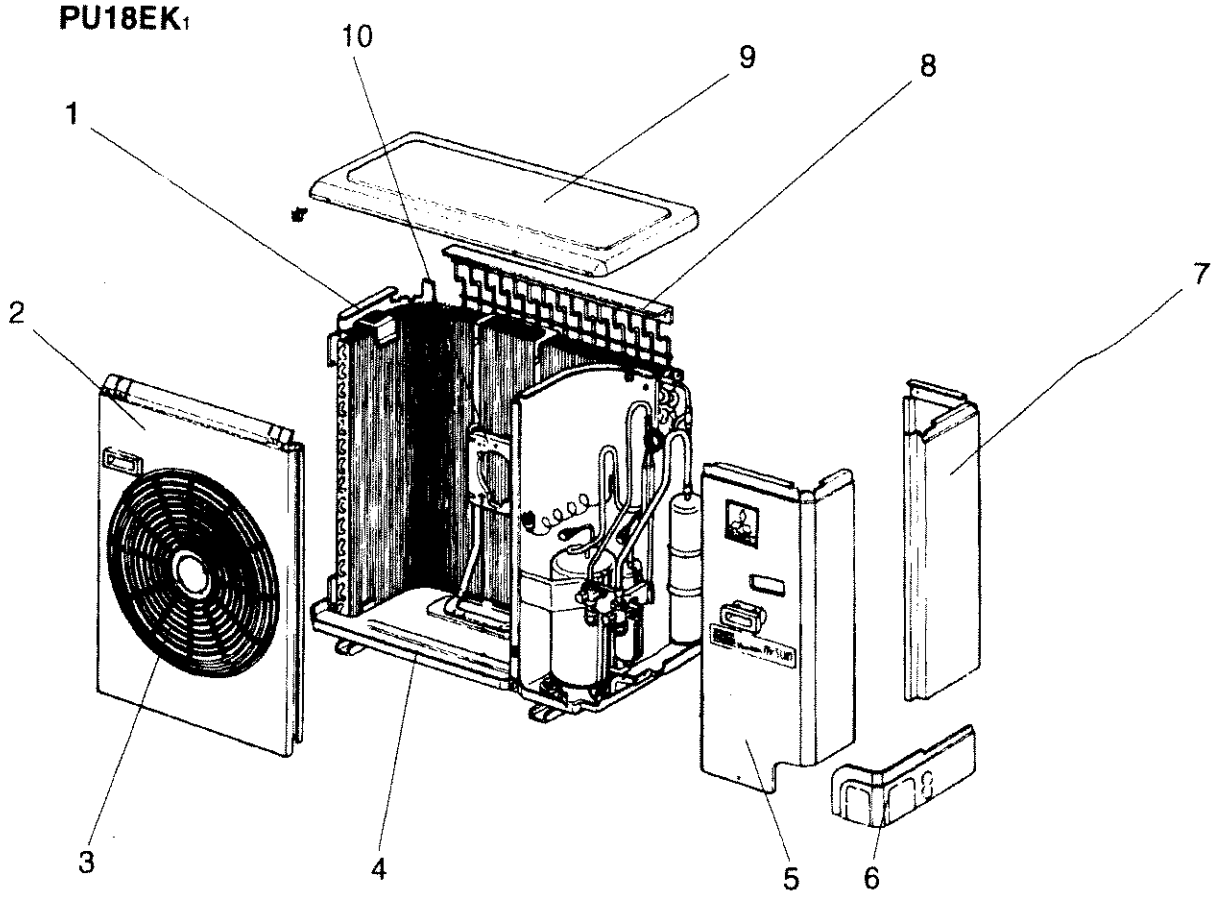
NOTE : All panels are clasped, and should be removed by shifting up and down.

OPERATING PROCEDURE	PHOTOS
1. Electrical parts (1) Remove top panel (3 screws in front, 2 screws in rear) (2) Remove cover panel (1 screw). The panel is anchored by clicks to the side panel. Remove by pulling towards you. (3) Remove cover panel (1 screw). The panel is clasped on the right and left sides. After removing the screw, pull the panel down and remove it by pulling towards you.	**Photo 1**  **Photo 2** 
2. Fan motor (1) Remove front panel (3 screws). Open the panel to a 45 degree angle and lift to remove. The panel is clasped at three points on the left side. (2) Remove propeller (1 set nut). (3) Remove fan motor (3 screws). Remove lead connector.	**Photo 3** 

OPERATING PROCEDURE	PHOTOS
3. Heat Exchanger, Compressor (1) Remove the rear / right side panel (2 screws in front, 1 screw on the side, 3 screws in the rear). Remove the electrical box, valve bed, and open to the rear to remove (anchors attached). (2) Remove right side panel (4 screws). (3) Remove rear guard (3 screws). (4) Remove separator support plate (4 screws). (5) Remove motor support (2 screws). (6) Remove valve bed (5 screws). The valve bed is clasped on the right and left sides. Lift to remove. (7) Remove the electrical parts box. Remove the respective connector from high pressure switch, Low-pressure switch, crank case heater, shell thermo, and fan motor lead. (8) Remove separator (2 screws). (9) Remove heat exchanger (2 screws). Remove piping weld zone. (10) Remove compressor (3 set nuts). Remove the weldment of the compressor suction pipe and discharge pipe.	**Photo 4**  **Photo 5**  **Photo 6** 

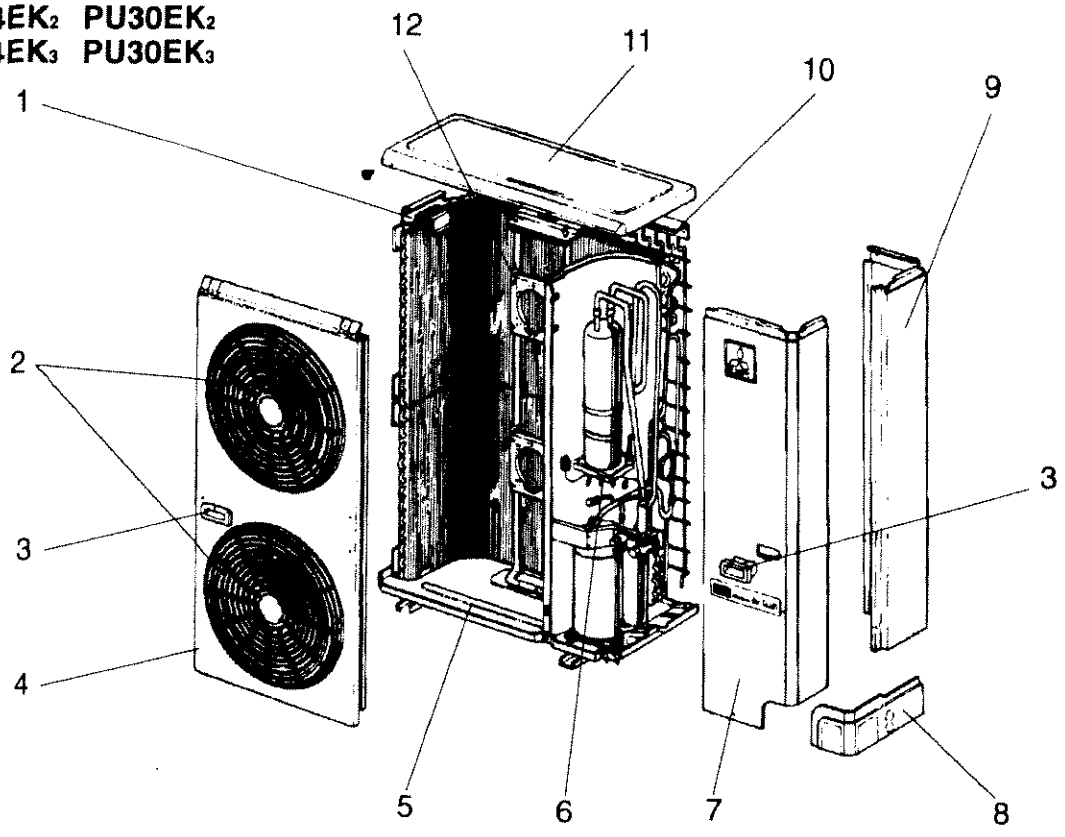
13 PARTS LIST

STRUCTURAL PARTS
PU12EK PU18EK PU18EK$_1$



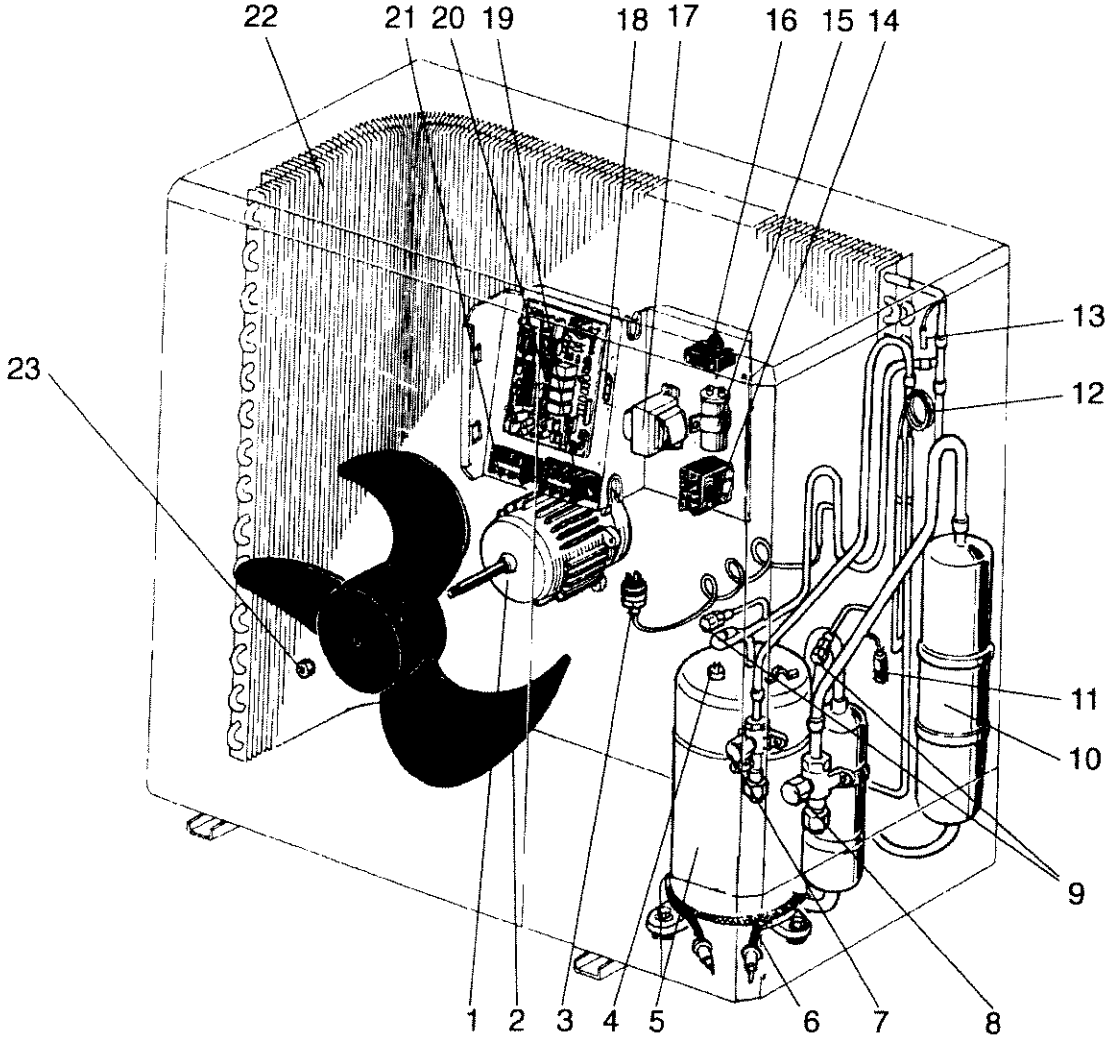
No.	Parts No.	Parts Name	Specifications	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol
				PU				
				12EK	18EK	18EK$_1$		
1	R01 A08 662	SIDE PANEL			1	1		
	R01 A00 662	SIDE PANEL		1				
2	R01 A08 668	FRONT PANEL			1	1		
	R01 A00 668	FRONT PANEL		1				
3	R01 A00 675	FAN GUARD		1	1	1		
4	R01 A00 686	BASE ASSEMBLY		1	1	1		
5	R01 A08 661	SERVICE PANEL			1	1		
	R01 A00 661	SERVICE PANEL		1				
6	R01 A00 658	PANEL COVER		1	1	1		
7	R01 A08 682	REAR PANEL			1	1		
	R01 A00 682	REAL PANEL		1				
8	R01 A08 698	REAR GUARD			1	1		
	R01 A00 698	REAR GUARD		1				
9	R01 A00 641	TOP PANEL		1	1	1		
10	T7W E03 130	MOTOR SUPPORT		1	1	1		

STRUCTURAL PARTS
PU24EK PU30EK
PU24EK$_1$ PU30EK$_1$
PU24EK$_2$ PU30EK$_2$
PU24EK$_3$ PU30EK$_3$



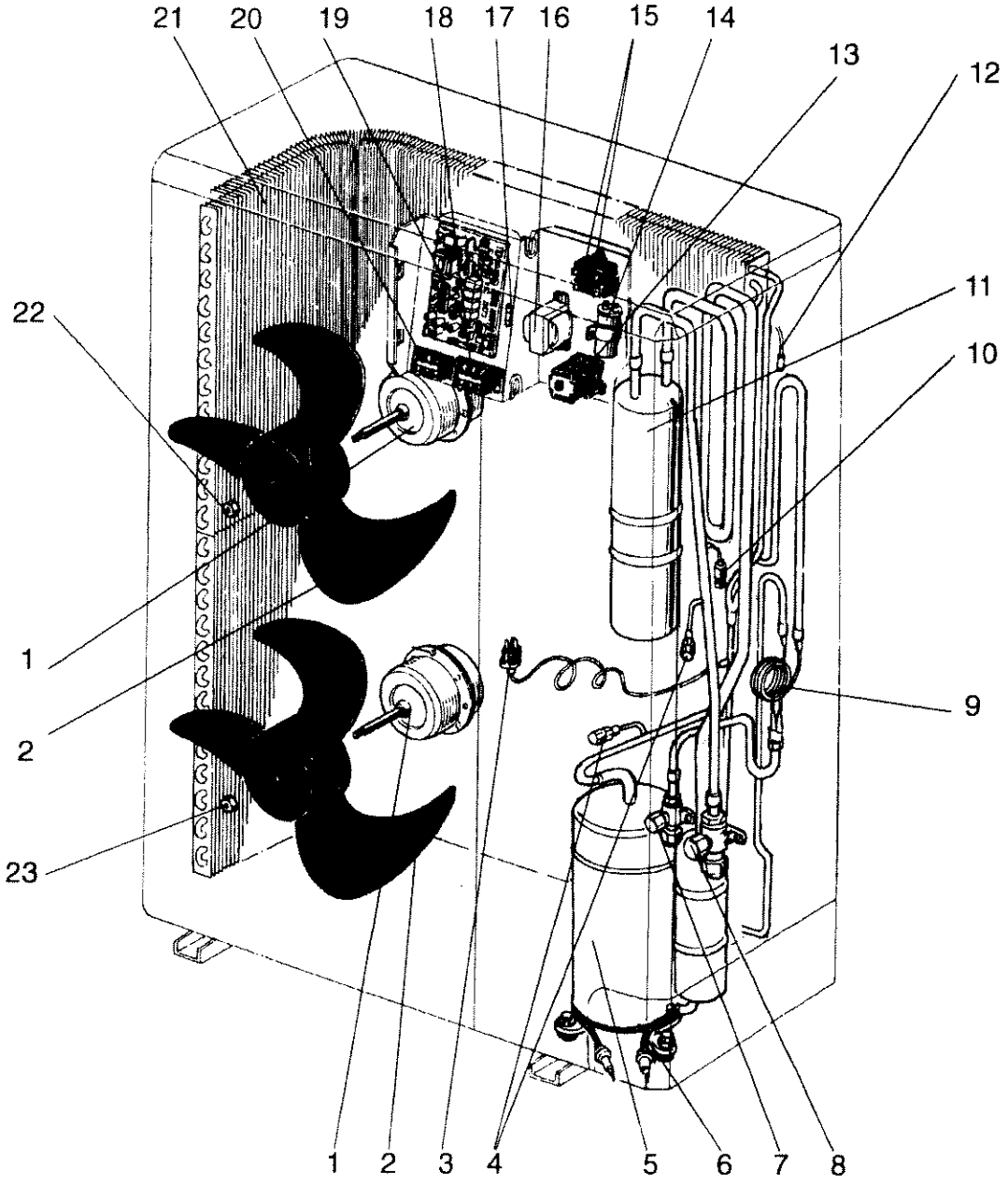
No.	Parts No.	Parts Name	Specifications	Q'ty / set		Remarks (Drawing No.)	Wiring Diagram Symbol
				PU24EK PU30EK PU24EK$_1$ PU30EK$_1$ PU24EK$_2$ PU30EK$_2$	PU24EK$_3$ PU30EK$_3$		
1	R01 A11 662	SIDE PANEL (LEFT)		1	1		
2	R01 A00 675	FAN GUARD		2	2		
3	R01 A00 655	PANEL HANDLE		3	3		
4	R01 A11 668	FRONT PANEL		1	1		
5	R01 A10 686	BASE ASSEMBLY		1	1		
6	T7W E00 529	DRAIN PAN			1		
7	R01 A11 661	SERVICE PANEL		1	1		
8	R01 A00 658	PANEL COVER		1	1		
9	R01 A11 682	REAR PANEL		1	1		
10	T7W E04 698	REAR GUARD		1	1		
11	T7W E02 641	TOP PANEL		1	1		
12	T7W E04 130	MOTOR SUPPORT		1	1		

FUNCTIONAL PARTS
PU12EK PU18EK
PU18EK1



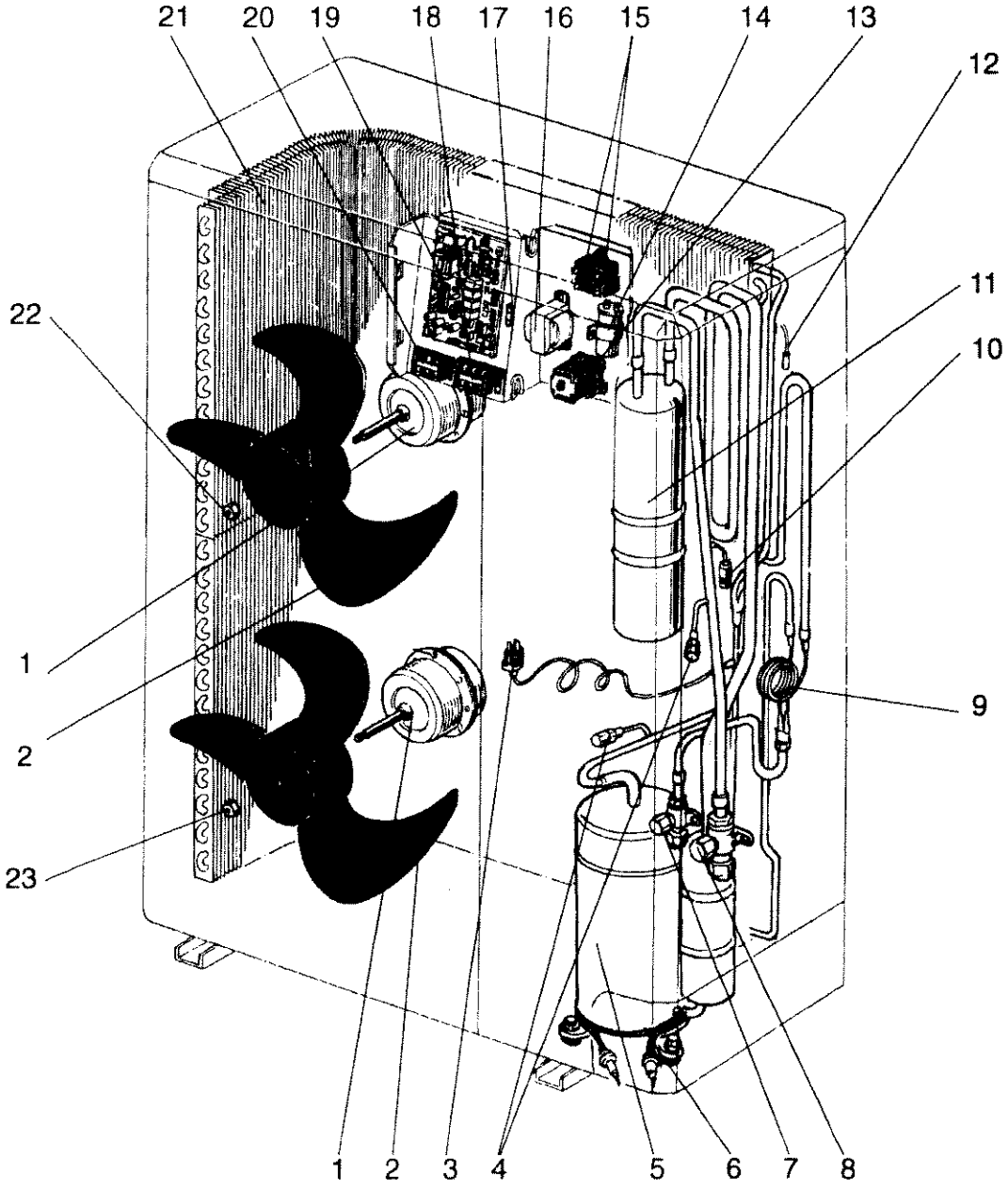
No.	Parts No.	Parts Name	Specifications	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol
				PU				
				12EK	18EK	18EK1		
1	T7W 850 763	FAN MOTOR	S6V-85FPH	1	1	1		MF3,MF
2	R01 A00 115	PROPELLER		1	1	1		
3	T7W 850 208	HIGH PRESSURE SWITCH	OPEN psiG 469	1	1	1		63H2
4	T7W 966 238	OVERCURRENT RELAY	MRA-98880-9030	1				51C
	T7W 969 238	OVERCURRENT RELAY	MRA98881-093		1	1		51C
5	T97 665 600	COMPRESSOR	RH247NAB		1	1		MC
	T92 650 452	COMPRESSOR	RH167NAB	1				MC
6	T7W 850 236	CRANKCASE HEATER	240V 30W	1	1	1		CH
7	R01 943 410	BALL VALVE	3/8	1	1	1		
8	R01 951 411	BALL VALVE	5/8		1	1		
	R01 943 411	BALL VALVE	5/8	1				
9	R01 590 413	CHARGE PLUG		2	2	2		
10	R01 A00 440	ACCUMULATOR		1	1	1		
11	T7W 973 507	FUSIBLE PLUG		1	1	1		
12	T7W E07 425	CAPILLARY TUBE	0.126×0.071×31.5	1				
	R01 600 425	CAPILLARY TUBE	0.126×0.063×31.5		2	2		
13	R01 J07 202	OUTDOOR COIL THERMISTOR		1	1	1		TH3
14	T7W A30 708	CONTACTOR	S-U12UL 215VAC	1		1		52C
	T7W 651 215	CONTACTOR	VC-20F 230VAC		1			52C
15	T7W 969 723	COMPRESSOR CAPACITOR	30μF 380V		1	1		C
	T7W 966 723	COMPRESSOR CAPACITOR	25μF 370V	1				C
16	R01 576 255	FAN MOTOR CAPACITOR	3μF 440V		1	1		C3
	R01 A00 255	FAN MOTOR CAPACITOR	2.5μF 440V	1				C3
17	T7W A30 799	TRANSFORMER	RED :12.3VAC,0.06A BRN :12.3VAC,0.06A	1		1		T
	T7W 850 799	TRANSFORMER	RED :15.5VAC,0.2A BRN :11.5VAC,0.2A ORN :36.0VAC,0.02A		1			T
18	T7W 410 239	FUSE	250V 6A	1	1	1		F3<0.8>,F<0.8>
19	T7W 850 716	TERMINAL BLOCK	3P(L1,L2,GR)	1	1	1		TB1
20	T7W E08 315	OUTDOOR CONTROLLER BOARD		1		1		O.B
	T7W 850 315	OUTDOOR CONTROLLER BOARD			1			O.B
21	R01 556 246	TERMINAL BLOCK	2P(1,2)	1	1	1		TB3
22	R01 K91 408	OUTDOOR HEAT EXCHANGER			1	1		
	T7W 850 408	OUTDOOR HEAT EXCHANGER		1				
23	R01 30L 097	NUT		1	1	1		

FUNCTIONAL PARTS
PU24EK
PU24EK$_1$
PU24EK$_2$
PU24EK$_3$



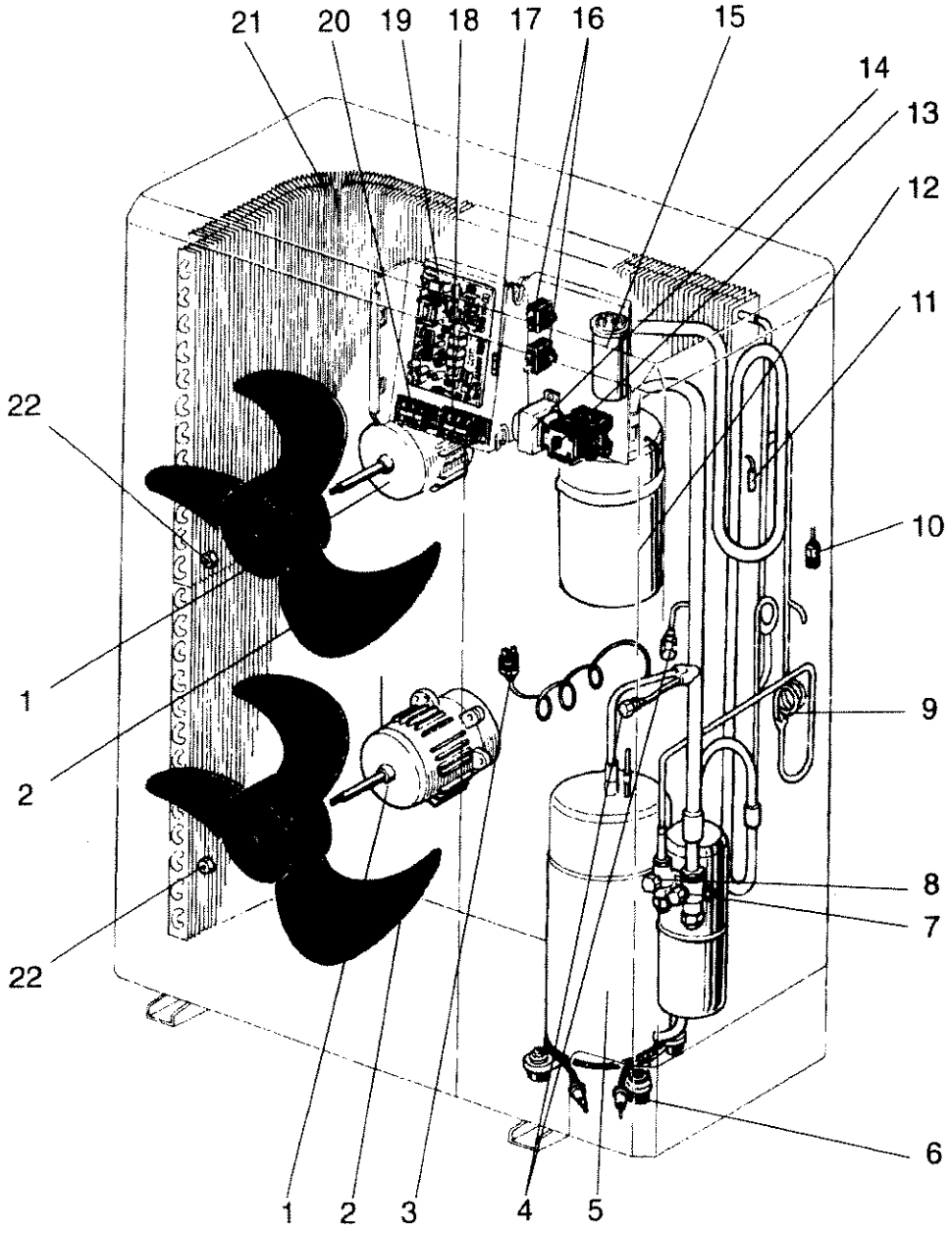
No.	Parts No.	Parts Name	Specifications	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol
				PU				
				24EK	24EK$_1$	24EK$_2$ 24EK$_3$		
1	T7W 851 763	FAN MOTOR	S6V-60FPN	2	2	2		MF3,4,1,2
2	R01 A00 115	PROPELLER		2	2	2		
3	T7W 850 208	HIGH PRESSURE SWITCH	OPEN psiG 363	1	1	1		63H2
4	R01 41L 413	CHARGE PLUG		2	2	2		
5	T97 517 300	COMPRESSOR	NH33NBD	1	1			MC
	T97 501 400	COMPRESSOR	NH33NBDT			1		MC
6	T7W 851 236	CRANKCASE HEATER	240V 43W	1	1	1		CH
7	R01 943 410	BALL VALVE	3/8	1	1	1		
8	R01 951 411	BALL VALVE	5/8	1	1	1		
9	T7W E17 425	CAPILLARY TUBE	0.126×0.063×17.3	2	2	2		
10	T7W 973 507	FUSIBLE PLUG		1	1	1		
11	R01 A12 440	ACCUMULATOR		1	1	1		
12	R01 J01 202	OUTDOOR COIL THERMISTOR		1	1	1		TH3
13	T7W A13 708	CONTACTOR	S-N25EX	1	1	1		52C
14	T7W 973 723	COMPRESSOR CAPACITOR	40μF 400V	1	1	1		C
15	R01 653 255	FAN MOTOR CAPACITOR	4μF 440V	2	2	2		C3, 4
16	T7W 850 799	TRANSFORMER	BRN: 11.5VAC, 0.2A RED: 15.5VAC, 0.2A ORN: 36.0VAC, 0.02A	1				T
	T7W E05 799	TRANSFORMER	RED: 12.3VAC, 0.06A BRN: 12.3VAC, 0.06A		1	1		T
17	T7W 410 239	FUSE	250V 6A	1	1	1		F3<0,B>,F<0,B>
18	T7W 850 716	TERMINAL BLOCK	3P(L1, L2, GR)	1	1	1		TB1
19	T7W 850 315	OUTDOOR CONTROLLER BOARD		1				O.B
	T7W E08 315	OUTDOOR CONTROLLER BOARD			1	1		O.B
20	R01 556 246	TERMINAL BLOCK	2P(1, 2)	1	1	1		TB3
21	R01 K92 408	OUTDOOR HEAT EXCHANGER		2	2	2		
22	R01 30L 097	NUT		2	2	2		

FUNCTIONAL PARTS
PU30EK
PU30EK1
PU30EK2
PU30EK3



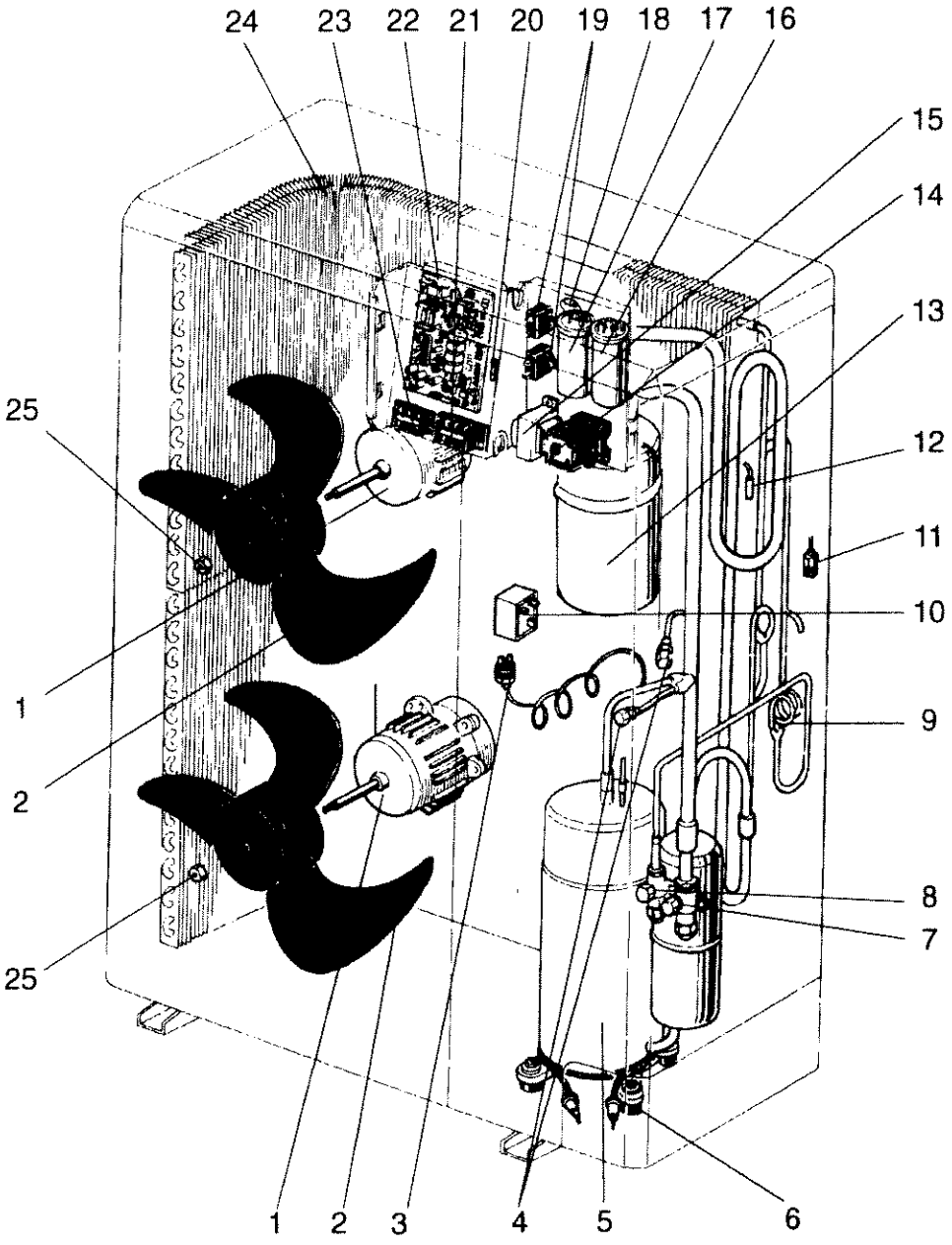
No.	Parts No.	Parts Name	Specifications	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol
				PU				
				30EK	30EK$_1$	30EK$_2$ 30EK$_3$		
1	T7W 851 763	FAN MOTOR	S6V-60FPN	2	2	2		MF3,4,1,2
2	R01 A00 115	PROPELLER		2	2	2		
3	T7W 850 208	HIGH PRESSURE SWITCH	OPEN psiG 363	1	1	1		63H2
4	R01 41L 413	CHARGE PLUG		2	2	2		
5	T97 511 300	COMPRESSOR	NH41NAD	1	1			MC
	T97 502 400	COMPRESSOR	NH41NAHT			1		MC
6	T7W 851 236	CRANKCASE HEATER	240V 43W	1	1	1		CH
7	R01 47L 410	BALL VALVE	1/2	1	1	1		
8	R01 670 411	BALL VALVE	3/4	1	1	1		
9	T7W E18 425	CAPILLARY TUBE	0.157×0.079×29.1	2	2	2		
10	T7W 973 507	FUSIBLE PLUG		1	1	1		
11	R01 A12 440	ACCUMULATOR		1	1	1		
12	R01 J01 202	OUTDOOR COIL THERMISTOR		1	1	1		TH3
13	T7W A13 708	CONTACTOR	S-N25EX	1	1	1		52C
14	T7W 867 723	COMPRESSOR CAPACITOR	50μF 400V	1	1	1		C
15	R01 653 255	FAN MOTOR CAPACITOR	4μF 440V	2	2	2		C3,4
16	T7W 850 799	TRANSFORMER	BRN: 11.5VAC, 0.2A RED: 15.5VAC, 0.2A ORN: 36.0VAC, 0.02A	1				T
	T7W E05 799	TRANSFORMER	RED: 12.3VAC, 0.06A BRN: 12.3VAC, 0.06A		1	1		T
17	T7W 410 239	FUSE	250V 6A	1	1	1		F3<0,B>,F<0,B>
18	T7W 850 716	TERMINAL BLOCK	3P(L1,L2,GR)	1	1	1		TB1
19	T7W 850 315	OUTDOOR CONTROLLER BOARD		1				O.B
	T7W E08 315	OUTDOOR CONTROLLER BOARD			1	1		O.B
20	R01 556 246	TERMINAL BLOCK	2P(1,2)	1	1	1		TB3
21	T7W 412 408	OUTDOOR HEAT EXCHANGER		2	2	2		
22	R01 30L 097	NUT		2	2	2		

FUNCTIONAL PARTS
PU36EK
PU36EK1
PU36EK2
PU36EK3



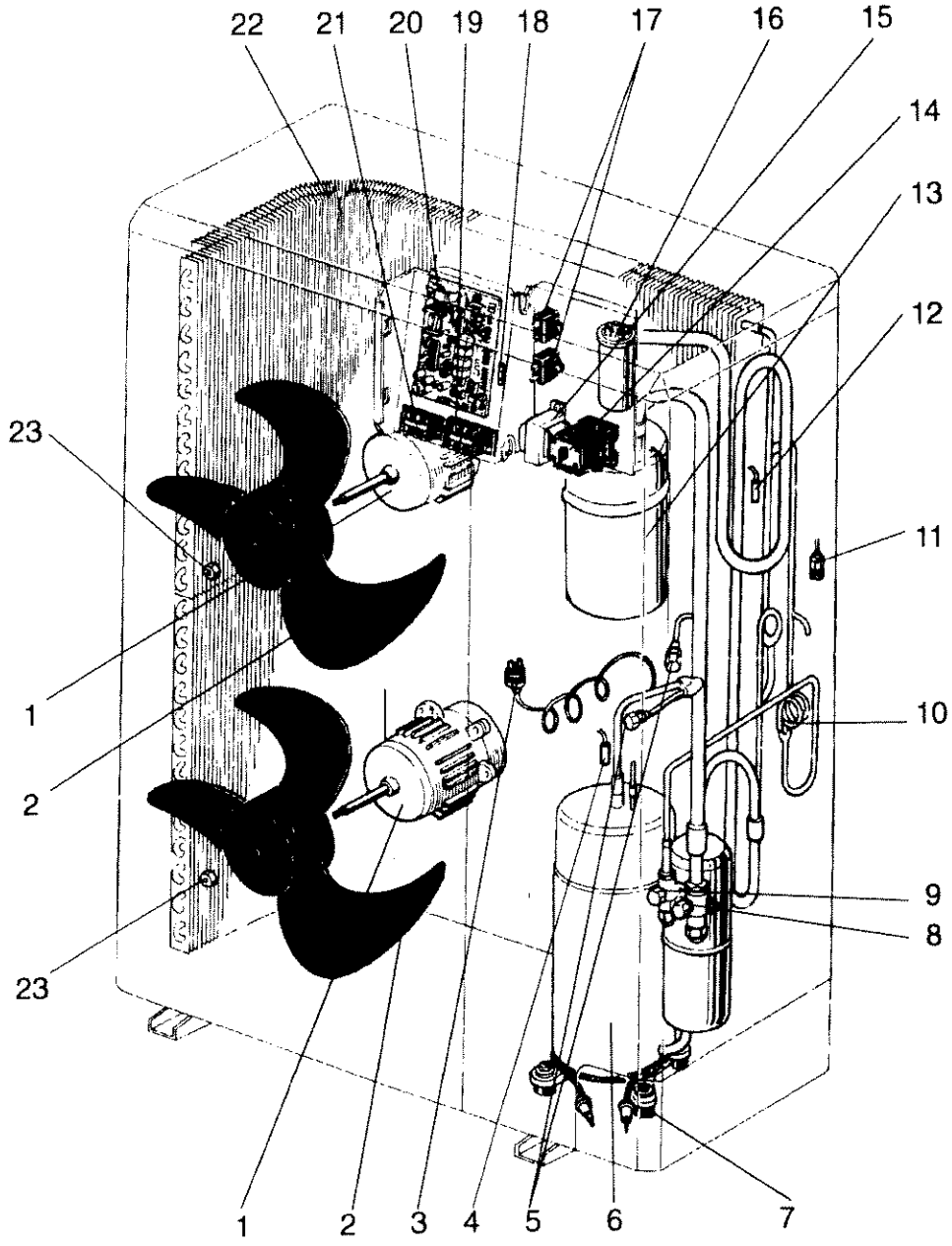
No.	Parts No.	Parts Name	Specifications	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol
				PU				
				36EK	36EK$_1$	36EK$_2$ 36EK$_3$		
1	T7W 852 763	FAN MOTOR	VC086DC	2	2	2		MF3,4,1,2
2	R01 A00 115	PROPELLER		2	2	2		
3	T7W 850 208	HIGH PRESSURE SWITCH	OPEN psiG 469	1	1	1		63H2
4	R01 41L 413	CHARGE PLUG		2	2	2		
5	T97 518 300	COMPRESSOR	NH47NAD	1	1			MC
	T97 503 400	COMPRESSOR	NH47NAHT			1		MC
6	T7W 851 236	CRANKCASE HEATER	240V 43W	1	1	1		CH
7	R01 670 411	BALL VALVE	3/4	1	1	1		
8	R01 47L 410	BALL VALVE	1/2	1	1	1		
9	T7W E06 425	CAPILLARY TUBE	0.157×0.079×17.7	2	2	2		
10	T7W 973 507	FUSIBLE PLUG		1	1	1		
11	T7W E24 202	OUTDOOR COIL THERMISTOR		1	1	1		TH3
12	T7W E01 440	ACCUMULATOR		1	1	1		
13	T7W A13 708	CONTACTOR	S-N25EX	1	1	1		52C
14	T7W E05 799	TRANSFORMER	RED:12.3VAC,0.06A BRN:12.3VAC,0.06A	1	1	1		T
15	T7W E02 723	COMPRESSOR CAPACITOR	60μF 360V	1	1	1		C
16	R01 576 255	FAN MOTOR CAPACITOR	3μF 440V	2	2	2		C3,4
17	T7W 410 239	FUSE	250V 6A	1	1	1		F3<O.B>,F<O.B>
18	T7W 850 716	TERMINAL BLOCK	3P(L1,L2,GR)	1	1	1		TB1
	T7W 850 315	OUTDOOR CONTROLLER BOARD		1				O.B
19	T7W E08 315	OUTDOOR CONTROLLER BOARD			1	1		O.B
20	R01 556 246	TERMINAL BLOCK	2P(1,2)	1	1	1		TB3
21	T7W E24 408	OUTDOOR HEAT EXCHANGER		2	2	2		
22	R01 30L 097	NUT		2	2	2		

FUNCTIONAL PARTS
PU42 EK2
PU42 EK2$_1$



No.	Parts No.	Parts Name	Specifications	Q'ty / set		Remarks (Drawing No.)	Wiring Diagram Symbol
				PU			
				42EK2	42EK2₁		
1	T7W 853 763	FAN MOTOR	PA6N100UG	2	2		MF3,4,1,2
2	R01 A00 115	PROPELLER		2	2		
3	T7W 850 208	HIGH PRESSURE SWITCH	OPEN psiG 469	1	1		63H2
4	R01 41L 413	CHARGE PLUG		2	2		
5	T97 513 300	COMPRESSOR	NH569NXA	1	1		MC
6	T7W 851 236	CRANKCASE HEATER	240V 43W	1	1		CH
7	R01 670 411	BALL VALVE	3/4	1	1		
8	R01 47L 410	BALL VALVE	1/2	1	1		
9	R01 442 425	CAPILLARY TUBE	0.157×0.079×7.1	2	2		
10	T7W A34 704	COMPRESSOR START RELAY	AMVL320B	1	1		19
11	T7W 973 507	FUSIBLE PLUG		1	1		
12	T7W E24 202	OUTDOOR COIL THERMISTOR		1	1		TH3
13	T7W E01 440	ACCUMULATOR		1	1		
14	T7W 868 708	CONTACTOR	S-K35UR	1	1		52C
15	T7W E05 799	TRANSFORMER	RED:12.3VAC,0.06A BRN:12.3VAC,0.06A	1	1		T
16	T7W A34 723	COMPRESSOR CAPACITOR	65μF 400V	1	1		C
17	T7W 853 723	COMPRESSOR START CAPACITOR	65μF 400V	1	1		C5
18	T7W A34 234	RESISTOR	15K 4W	1	1		R
19	R01 653 255	FAN MOTOR CAPACITOR	4μF 440V	2	2		C3,4
20	T7W 410 239	FUSE	250V 6A	1	1		F3<O.B>,F<O.B>
21	T7W 850 716	TERMINAL BLOCK	3P(L1,L2,GR)	1	1		TB1
22	T7W 850 315	OUTDOOR CONTROLLER BOARD		1			O.B
	T7W E08 315	OUTDOOR CONTROLLER BOARD			1		O.B
23	R01 556 246	TERMINAL BLOCK	2P(1,2)	1	1		TB3
24	R01 V29 408	OUTDOOR HEAT EXCHANGER		2	2		
25	R01 30L 097	NUT		2	2		

FUNCTIONAL PARTS
PU42EK7
PU42EK7$_1$
PU42EK7$_2$



No.	Parts No.	Parts Name	Specifications	Q'ty / set		Remarks (Drawing No.)	Wiring Diagram Symbol
				PU			
				42EK7	42EK7$_1$ 42EK7$_2$		
1	T7W 853 763	FAN MOTOR	PA6N100UG	2	2		MF1, 2
2	R01 A00 115	PROPELLER		2	2		
3	T7W 850 208	HIGH PRESSURE SWITCH	OPEN psiG 469	1	1		63H2
4	R01 86H 201	DISCHARGE THERMAL SWITCH		1	1		26C
5	R01 41L 413	CHARGE PLUG		2	2		
6	T97 513 500	COMPRESSOR	ZR42K3PFV	1	1		MC
7	T7W 851 236	CRANKCASE HEATER	240V 43W	1	1		CH
8	R01 670 411	BALL VALVE	3/4	1	1		
9	R01 47L 410	BALL VALVE	1/2	1	1		
10	T7W E10 425	CAPILLARY TUBE	0.157×0.079×21.7	2	2		
11	T7W 973 507	FUSIBLE PLUG		1	1		
12	T7W E24 202	OUTDOOR COIL THERMISTOR		1	1		TH3
13	T7W E01 440	ACCUMULATOR		1	1		
14	T7W A14 708	CONTACTOR	S-N35EX	1			52C
	T7W E07 708	CONTACTOR	MSO-N25KF		1		51C, 52C
15	T7W E05 799	TRANSFORMER	RED:12.3VAC,0.06A BRN:12.3VAC,0.06A	1	1		T
16	T7W E02 723	COMPRESSOR CAPACITOR	60μF 380V	1	1		C
17	R01 653 255	FAN MOTOR CAPACITOR	4μF 440V	2	2		C3,4
18	T7W 410 239	FUSE	250V 6A	1	1		F3<0.8>,F<0.8>
19	T7W 850 716	TERMINAL BLOCK	3P(L1,L2,GR)	1	1		TB1
20	T7W E08 315	OUTDOOR CONTROLLER BOARD		1			O.B
	T7W E15 315	OUTDOOR CONTROLLER BOARD			1		O.B
21	R01 556 246	TERMINAL BLOCK	2P(1,2)	1	1		TB3
22	T7W E07 408	OUTDOOR HEAT EXCHANGER		2	2		
23	R01 30L 097	NUT		2	2		

Mr.SLIM™

MITSUBISHI ELECTRIC CORPORATION

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Specifications subject to change without notice.

Exhibit 3

1997 STANDARD for

APPLICATION OF SOUND RATING LEVELS OF OUTDOOR UNITARY EQUIPMENT

AIR-CONDITIONING &
REFRIGERATION
INSTITUTE

Standard 275

4301 NORTH FAIRFAX DRIVE • ARLINGTON, VIRGINIA 22203

IMPORTANT

SAFETY RECOMMENDATIONS

It is strongly recommended that the product be designed, constructed, assembled and installed in accordance with nationally recognized safety requirements, appropriate for products covered by this standard.

ARI, as a manufacturer's trade association, uses its best efforts to develop standards, employing state-of-the-art and accepted industry practices. However, ARI does not certify or guarantee safety of any products, components or systems designed, tested, rated, installed or operated in accordance with these standards or that any test conducted under its standards will be non-hazardous or free from risk.

Note:

This Standard supersedes ARI Standard 275-84.

Price $15.00 (M) $30.00 (NM)
Printed in U.S.A.

TABLE OF CONTENTS

TABLES

APPENDICES

APPLICATION OF SOUND RATING LEVELS OF OUTDOOR UNITARY EQUIPMENT

Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to establish for outdoor unitary equipment: definitions, procedures for estimating A-Weighted sound pressure levels, and recommended application practices.

1.1.1 *Intent.* This standard is intended for the guidance of the industry, including manufacturers, engineers, installers, contractors and users.

1.1.2 *Review and Amendment.* This standard is subject to review and amendment as technology advances.

Section 2. Scope

2.1 *Scope.* This standard applies to the outdoor sections of factory-made air-conditioning and heat pump equipment, as defined in Section 3 and ARI Standard 210/240 when rated in accordance with ARI Standard 270.

Section 3. Definitions

3.1 *Definitions.* All terms in this document will follow the standard industry definitions established in the current edition of ASHRAE *Terminology of Heating, Ventilation, Air Conditioning and Refrigeration*, unless otherwise defined in this section.

3.2 *Sound Rating Level.* That number which is assigned to equipment rated in accordance with ARI Standard 270.

3.2.1 *Standard Sound Rating Level.* That number assigned to equipment rated at Standard Rating Conditions in accordance with ARI Standard 270.

3.2.2 *Application Sound Rating Level.* A number assigned to equipment rated in accordance with ARI Standard 270 at conditions other than Standard Rating Conditions.

3.3 *A-Weighted Sound Pressure Level.* As used herein, the sound pressure level, as measured on the "A" scale of a sound level meter manufactured in accordance with the provisions of ANSI Standard S1.4.

3.4 *C-Weighted Sound Pressure Level.* As used herein, the sound pressure level, as measured on the "C" scale of a sound level meter manufactured in accordance with the provisions of ANSI Standard S1.4.

3.5 "Shall," "Should," "Recommended," or "It Is Recommended." "Shall," "should," "recommended," or "it is recommended" shall be interpreted as follows:

3.5.1 *Shall.* Where "shall" or "shall not" is used for a provision specified, that provision is mandatory if compliance with the standard is claimed.

3.5.2 *Should, Recommended, or It Is Recommended.* "Should," "recommended," or "it is recommended" is used to indicate provisions which are not mandatory but which are desirable as good practice.

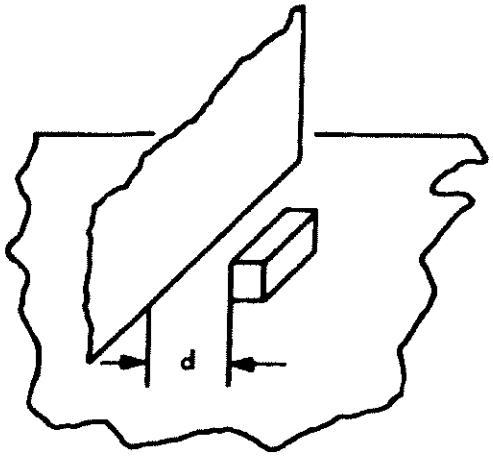
Section 4. Procedure for Estimating A-Weighted Sound Pressure Levels

4.1 *Introduction.* ARI Standard 270 establishes a method of rating outdoor unitary equipment in terms of ARI Sound Rating Levels. The sound level of outdoor unitary equipment in various applications is dependent not only upon the ARI Sound Rating Level but also upon several significant factors related to the application of the equipment. These factors include equipment location, barrier shielding, sound path, and distance, as described in 4.1.1 through 4.1.4 and Table 1. Quantitative values for each of these factors are established to adjust the sound rating level. The summation of the sound rating levels and applied adjustments equal the estimated A-Weighted sound pressure level. The rating method in ARI Standard 270 incorporates an adjustment which is applied in the presence of tones. This method may result in slightly higher predicted sound levels than measured sound levels when following the procedures described in this standard.

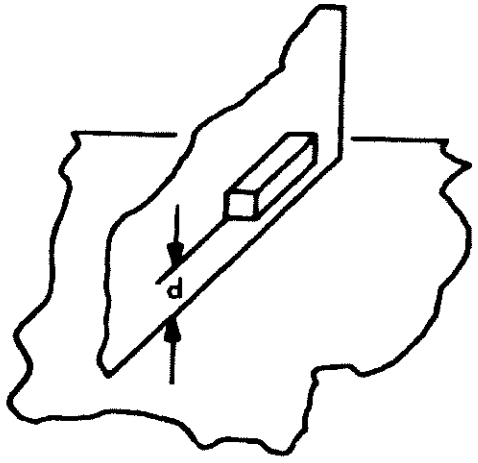
4.1.1 *Equipment Location Factor.* This factor takes into consideration the effect of walls and other reflective surfaces adjacent to the equipment. Factors for typical equipment locations are given in Item 1, Table 1, and described with sketches.

Table 1. Application Factors for Estimating A-Weighted Sound Pressure Levels

1. Equipment Location Factor	Factor Value
a. Equipment on ground or roof or in side of building wall with *no* adjacent reflective surface within 10 ft. [3 m] (d greater than 10 ft. [3 m])	0 dB
b. Equipment on ground or roof or in side of building wall with a *single* adjacent reflective surface within 10 ft. [3 m] (d less than 10 ft. [3 m])	3 dB

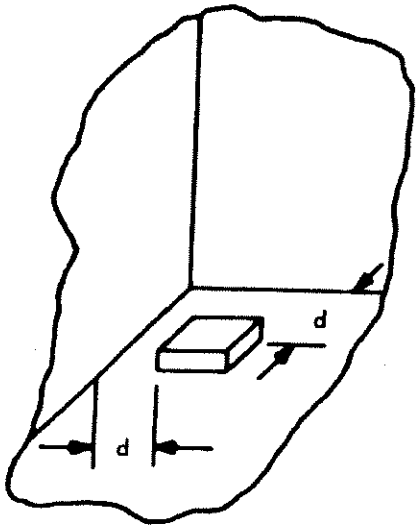


On Ground or Roof
Single Reflective Surface

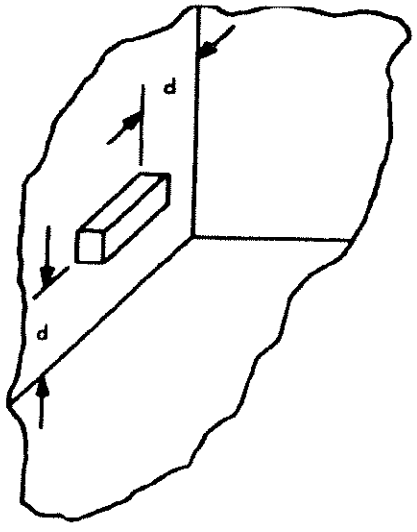


In Side of Building
Single Reflective Surface

c. Equipment on ground or roof or in side of building wall within 10 ft. [3 m] of *two* adjacent walls forming an inside corner (d less than 10 ft. [3 m] to both surfaces)	6 dB



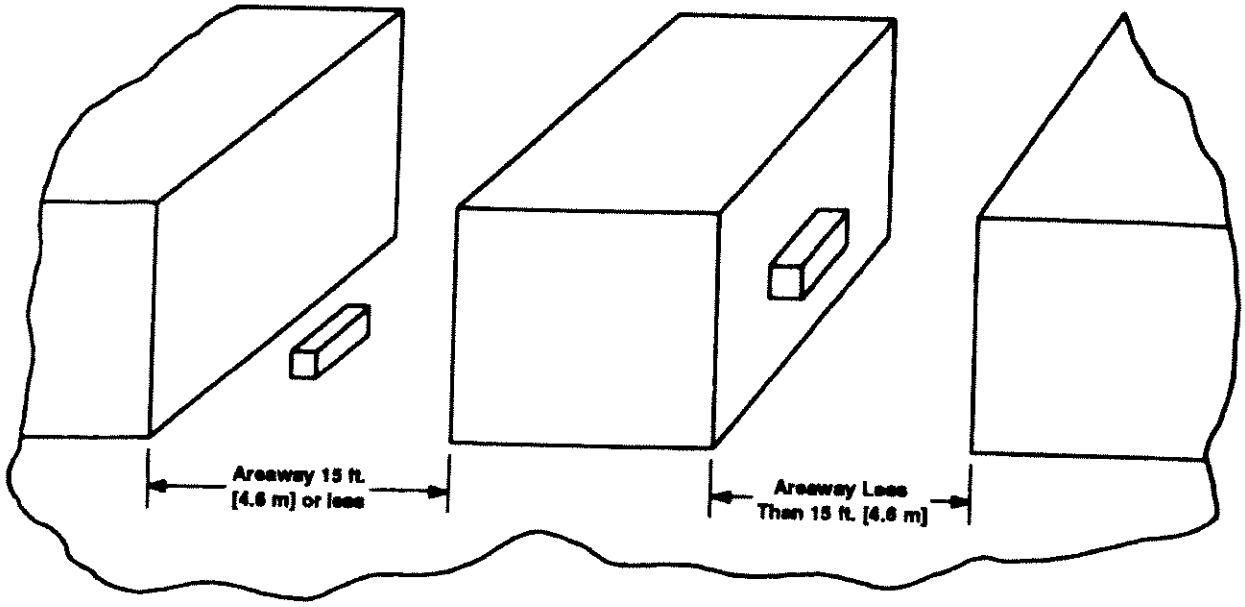
On Ground or Roof
Two Adjacent Reflecting Surfaces



In Side of Building
Two Adjacent Reflecting Surfaces

Table 1. Application Factors for Estimating A-Weighted Sound Pressure Levels (Continued)

1. Equipment Location Factor (continued)	Factor Value
d. Equipment on ground or roof or in side of building wall and between two opposite reflecting surface less than 15 ft. [4.6 m] apart	6 dB



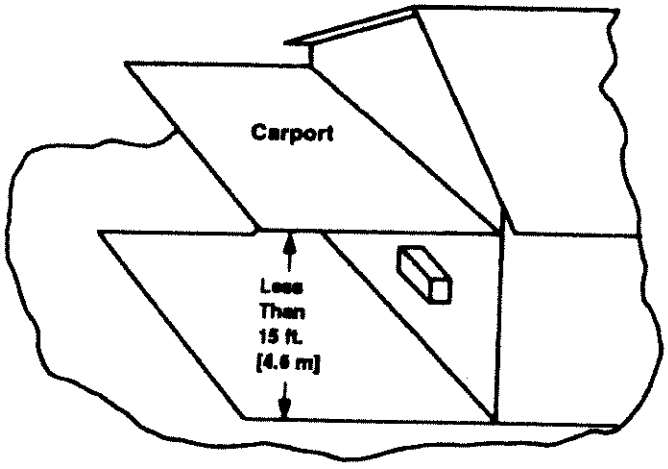
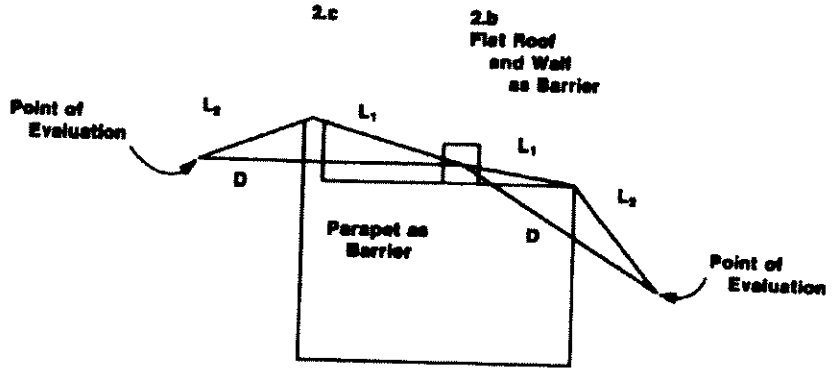
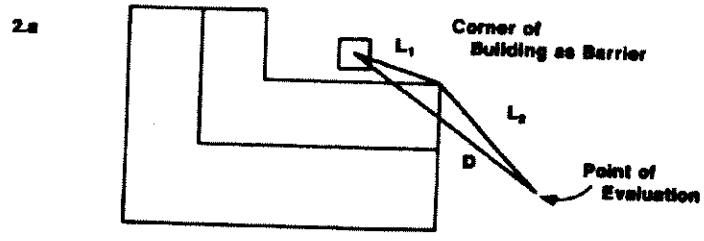


Table 1. Application Factors for Estimating A-Weighted Sound Pressure Levels (Continued)

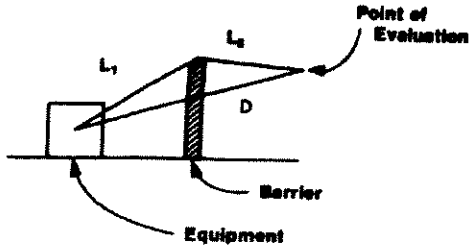
2. Barrier Shielding Factor (see sketches below). Sound reduction benefits can be gained when a solid structure obstructs the sound path. These structures could be:

a. Corner of building
b. Corner of flat roof and wall
c. Parapet around flat roof
d. Heavy continuous wall





$L = L_1 + L_2 - D$, where:



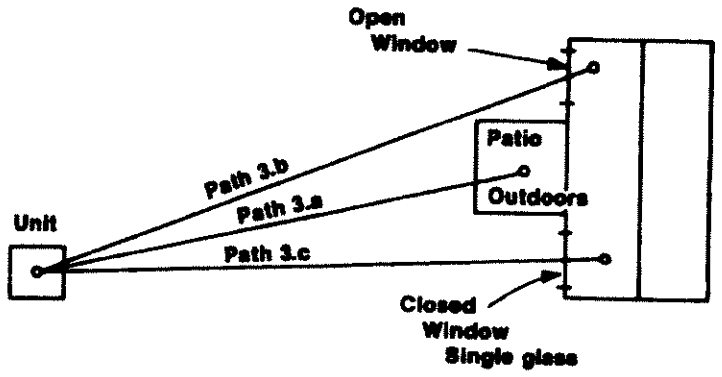
$L_1 + L_2$ = Distance from equipment point of evaluation around barrier (Use minimum $L_1 + L_2$ value.)

D = Direct distance from equipment to point of evaluation with no barrier. Determine D by layout sketch.

L ft. [m]	Factor Value
0.5 [0.15]	4 dB
1 [0.3]	7 dB
2 [0.6]	10 dB
3 [0.9]	12 dB
6 [1.8]	15 dB
12 [3.7]	17 dB

Table 1. Application Factors for Estimating A-Weighted Sound Pressure Levels (Continued)

3. Sound Path Factor	Factor Value
a. To a point of evaluation outdoors	0 dB
b. To room through open window(s) or open door(s)	10 dB
c. To room through closed single glass window(s) or door	17 dB
d. To room through closed double glass window(s) or solid wall (not illustrated)	23 dB



4.1.2 *Barrier Shielding Factor.* This factor accounts for the sound reduction benefit of any solid structure that obstructs the line of sight (or sound) from the equipment location to the point of evaluation. Such a barrier may be the corner of a building, the edge of a roof, or a heavy wall of masonry, etc., built for the specific purpose of shielding noise from a unit to an area of concern. See Item 2, Table 1, for sketches and the normal barrier factors.

4.1.3 *Sound Path Factor.* This factor adjusts for the path of sound from the unit to the point of evaluation, which may be to the outdoors only, to a room through open windows, to a room through closed windows, or through a wall. See Item 3, Table 1.

4.1.4 *Distance Factor.* The direct distance, D, from the equipment location to the point of evaluation is a very significant application factor in determining the estimated A-Weighted sound pressure levels resulting from the operation of outdoor equipment in any installation. The distance factor is obtained from Table 2.

Table 2. Distance Factor

ft.	[m]	Factor Value (dB)
4	1.2	9.5
5	1.5	11.5
6	1.8	13.0
7	2.1	14.5
8	2.4	15.5
9	2.7	16.5
10	3.0	17.5
15	4.6	21.0
20	6.1	23.5
25	7.6	25.5
30	9.1	27.0
40	12.2	29.5
50	15.2	31.0
60	18.3	33.0
70	21.3	34.5
80	24.4	35.5
90	27.4	36.5
100	30.5	37.5
125	38.1	39.5
150	45.7	41.0
175	53.3	42.5
200	61.0	43.5
400	122.0	49.5

4.2 *Procedure for Estimating Sound Pressure Levels - Single Unit Installation.* The basic procedure for estimating A-Weighted sound pressure levels at a given point of evaluation consists of combining the sum of the application and evaluation factors with the Sound Rating Level for the equipment:

	Sound Rating Level from ARI 270	_____
+	Equipment Location Factor	_____
−	Barrier Shielding Factor	_____
−	Sound Path Factor	_____
−	Distance Factor	_____
	Estimated A-Weighted Sound Pressure Level	_____ dB*

4.3 *Procedure for Estimating Sound Levels-Multiple Unit Installation.* Estimated sound levels for multiple unit installations at any point of interest can be determined by combining the effects of each unit at the point of interest. The procedure for multi-unit installations follows that used for single units except for the additional procedure used to combine numbers.

4.3.1 The combined level for all units is determined as follows:

1. Determine the numerical difference between the largest and next largest levels.
2. Using Table 3, find the proper value and add it to the larger number. This combines the two largest numbers.
3. Determine the numerical difference between this combined number and the third largest level. Again, using Table 3, find the proper value and add it to the combined number.
4. Continue this combining procedure until the value to be added from Table 3 becomes 0.0 or until all numbers have been combined.
5. The resulting single number represents the effect of all units at the point of evaluation. (See Example 4.5.4)

Table 3. Values Used for Combining Numbers for Multi-Unit Installations

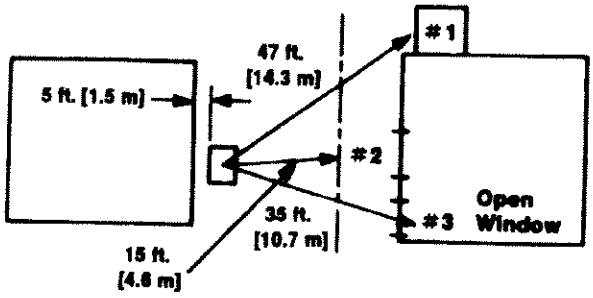
Difference Between Numbers (dB)	Value to be Added to Larger Number (dB)
0.0 to 0.5	3.0
1.0 to 1.5	2.5
2.0 to 3.0	2.0
3.5 to 5.0	1.5
5.5 to 7.0	1.0
greater than 7.0	0.0

4.4 *Points of Evaluation.* The calculation procedures described in 4.2 and 4.3 should be made for each area of concern to evaluate the installation from an acoustic standpoint (see 4.5, Examples). Measured A-Weighted sound pressure levels shall be within ± 5 dB of estimated levels when background levels are at least 5 dB below measured values. This estimation error accounts for the effect of the tone adjustment applied during the rating procedure of ARI Standard 270, as well as inaccuracies in the estimation procedure itself. To obtain the background level, readings shall be made with the unit not operating. The effects of environmental conditons on estmated sound levels are not included in this procedure.

* Rounded to the nearest whole dB value.

4.5 *Examples.*

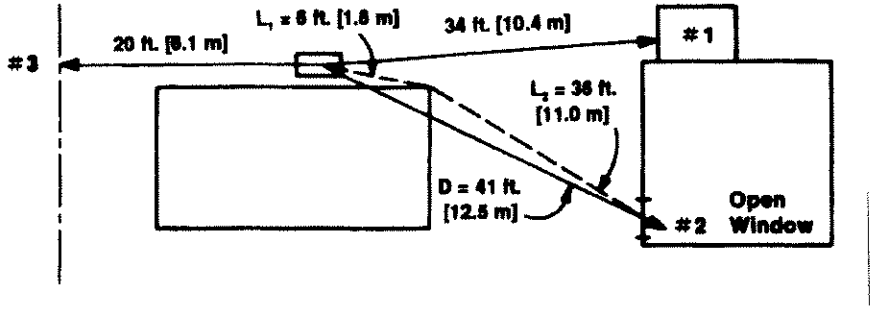
4.5.1 *Installation with No Barriers and One Reflective Surface.*



Sound Rating Level of Unit - 68 dB

Line	Distance from equipment to evaluation point 1. 47 ft. [14.3 m] 2. 15 ft. [4.6 m] 3. 35 ft. [10.7 m]	Evaluation Points		
		1	2	3
1	Unit Sound Rating Level (ARI Standard 270)	68	68	68
2	Equipment Location Factor (Table 1, Item 1)	3	3	3
3	Add Lines 1 and 2	71	71	71
4	Barrier Shielding Factor (Table 1, Item 2)	0	0	0
5	Sound Path Factor (Table 1, Item 3)	0	0	10
6	Distance Factor (Table 2)	31	21	28
7	Add Lines 4, 5 and 6	31	21	38
8	Estimated A-Weighted Sound Pressure Level (Subtract Line 7 from Line 3)	40	50	33

4.5.2 *Installation with Barriers.*

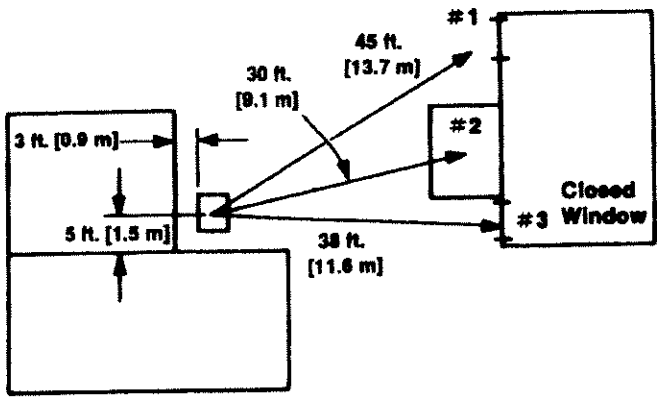


Sound Rating Level of Unit - 70 dB

$L = L_1 + L_2 - D$

Line	Distance from equipment to evaluation point 1. 34 ft. [10.4 m] 2. 41 ft.[12.5 m] 3. 20 ft. [6.1 m]	Evaluation Points		
		1	2	3
1	Unit Sound Rating Level (ARI Standard 270)	70	70	70
2	Equipment Location Factor (Table 1, Item 1)	3	3	3
3	Add Lines 1 and 2	73	73	73
4	Barrier Shielding Factor (Table 1, Item 2)	0	7	0
5	Sound Path Factor (Table 1, Item 3)	0	10	0
6	Distance Factor (Table 2)	28	29.5	23.5
7	Add Lines 4, 5 and 6	28	46.5	23.5
8	Estimated A-Weighted Sound Pressure Level (Subtract Line 7 from Line 3)	45	26.5	49.5
9	Estimated A-Weighted Sound Pressure Level Rounded to Nearest Whole Number	45	27	50

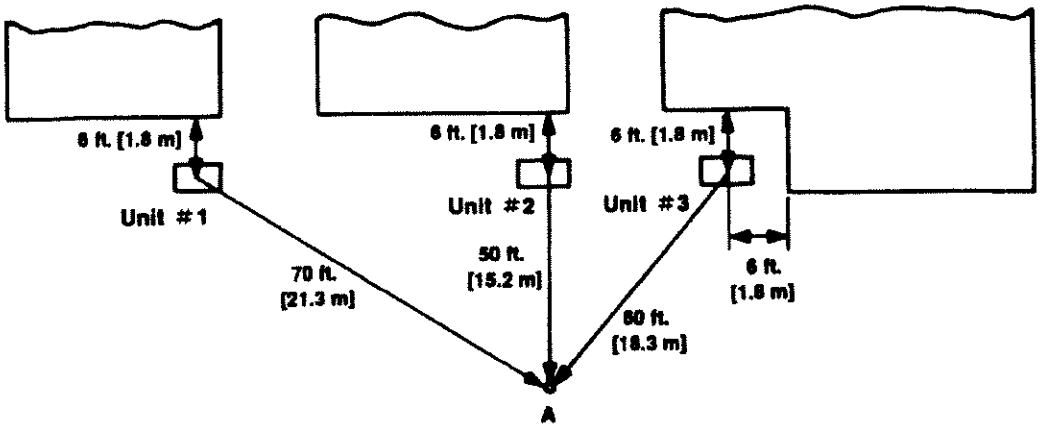
4.5.3 *Installation with Two Reflective Surfaces.*



Sound Rating Level of Unit - 71 dB

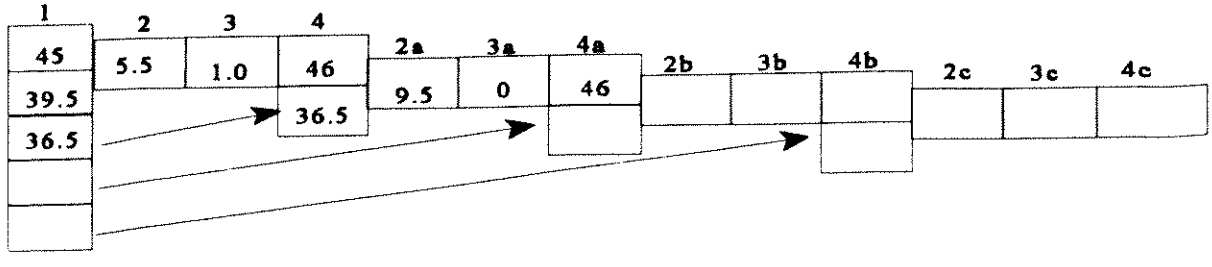
Line	Distance from equipment to evaluation point 1. 45 ft.[13.7 m] 2. 30 ft. [9.1 m] 3. 38 ft. [11.6 m]	Evaluation Points		
		1	2	3
1	Unit Sound Rating Level (ARI Standard 270)	71	71	71
2	Equipment Location Factor (Table 1, Item 1)	6	6	6
3	Add Lines 1 and 2	77	77	77
4	Barrier Shielding Factor (Table 1, Item 2)	0	0	0
5	Sound Path Factor (Table 1, Item 3)	0	0	17
6	Distance Factor (Table 2)	30.5	27	29
7	Add Lines 4, 5 and 6	30.5	27	46
8	Estimated A-Weighted Sound Pressure Level (Subtract Line 7 from Line 3)	46.5	50	31
9	Estimated A-Weighted Sound Pressure Level Rounded to Nearest Whole Number	47	50	31

4.5.4 *Multiple Units.*



Sound Rating Level of Unit #1 - 68 dB
Sound Rating Level of Unit #2 - 68 dB
Sound Rating Level of Unit #3 - 72 dB

Line	Distance from equipment to evaluation point 1. 70 ft. [21.3 m] 2. 50 ft. [15.2 m] 3. 60 ft. [18.3 m]	Units		
		1	2	3
1	Sound Rating Level of Units (ARI Standard 270)	68	68	72
2	Equipment Location Factor (Table 1, Item 1)	3	3	6
3	Add Lines 1 and 2	71	71	78
4	Barrier Shielding Factor (Table 1, Item 2)	0	0	0
5	Sound Path Factor (Table 1, Item 3)	0	0	0
6	Distance Factor (Table 2)	34.5	31.5	33
7	Add Lines 4, 5 and 6	34.5	31.5	33
8	Estimated A-Weighted Sound Pressure Level (Subtract Line 7 from Line 3)	36.5	39.5	45
9	Estimated A-Weighted Sound Pressure Level Rounded to Nearest Whole Number	37	40	45



10	Estimated Combined A-Weighted Sound Pressure Level at Point A	46

4.5.5 *Calculation Procedure for Multiple Units.*

1. Calculate estimated A-Weighted sound pressure level for each unit.
2. List estimated level for each unit in Column 1, starting with the largest number first and second largest next, etc.
3. Enter in Column 2, the difference of values between the two largest.
4. Enter in Column 3, the value to be added to the largest value from Table 3.
5. Enter in Column 4, the new value.
6. If there are more than two units, repeat above procedure 3 through 5, starting in Column 2a. Continue until a single value exists. Note that the third entry in Column 1 is transferred to Column 4 as indicated by the arrow, the fourth to Column 4a, etc.

Section 5. Recommended Practices

5.1 *Unit Selection.* Sizing should be adequate to handle the heat gains established by use of ASHRAE GRP158 Cooling and Heating Load Calculation Manual or equivalent. More than slight oversizing should be avoided, as this will result in excessive cycling (the end results being both poor thermal control and objectionable acoustical behavior).

5.2 *Location.* Outdoor units should be placed on sites chosen to minimize sound heard by building occupants and/or neighbors. This is accomplished by choosing a location that results in the lowest equipment location factor, the highest barrier shielding factor, and the greatest distance to sound sensitive areas. (See Section 4 and Table 1).

5.2.1 *Barrier Shielding.* Section 4.1.2 and Table 1 address the sound reduction which would be estimated when barriers exist between a sound source and a point of observation. Using these data, advantage should be taken of any possible barriers offered by existing structures. If a barrier is to be constructed specifically for this purpose, more accurate results can be obtained if the noise eminating from the installed equipment is measured before the barrier design is finalized. Measurements should be made on both the "A" and "C" scales of a standard sound level meter. The difference between these two readings may be used with Table 4 to obtain a better estimate of sound reduction than would be possible without such measurements. As an example, if the C-Weighted level is 60 dB and the A-Weighted level is 55 dB, a barrier (for which L = 2 for the location under consideration) would be expected to provide a reduction of 13 dB instead of 10 dB as indicated in Table 1, with a resultant A-weighted sound pressure level of 42 dB.

5.2.2 *Orientation.* Many items of equipment have a directional pattern of sound radiation. In the absence of such data, it can be assumed that sound will be radiated most strongly in directions normal to the surfaces through which air enters and leaves the equipment. Where permitted by other installation details, the directions of maximum sound radiation from the equipment should be oriented towards the least sensitive locations on the site.

5.2.3 *Multiple Unit Locations.* When the sound level for a combination of units exceeds the desired value at the point of evaluation, changes in unit location or sound path should be made to the individual unit that produced the highest single contribution to the sound level. This may not be the unit with the highest sound rating level. When reduction in the combined sound level is required in cases where several units produce equal individual sound levels (they differ by less than 2 dB), changes must be considered for each of these in order to make an overall improvement. Recalculating the combined sound level assuming several possible changes will quickly indicate the most desirable modifications.

5.3 *Installation.*

5.3.1 *Mounting.* Equipment should be mounted on a substantial foundation. Precast concrete slabs may be used for smaller units, in which case, care should be taken to assure a firm, distributed support for the slab. Equipment intended for mounting in a wall or on a roof should be installed in accordance with the manufacturer's recommendations. It should be ascertained that the building structure at the point of attachment is sufficiently strong and rigid to accept the added load. Equipment which is not intended for mounting to the building structure should not be rigidly attached to a wall or other structure of substantial size which may radiate sound.

TAB

TYPE TO BE USED ON THE COVER

TAB

275-97

	3 ft. [0.9 m]
40	
	45 ft. [13.7 m]
37	
5.0	38 ft. [11.6 m]
1.5	
46.5	30 ft. [9.1 m]
37.0	70 ft. [21.3 m]
Areaway 15 ft. [4.6 m] or less	50 ft. [15.2 m]
Areaway Less Than 15 ft. [4.6 m]	60 ft. [18.3 m]
	6 ft. [1.8 m]
Less Than 15 ft. [4.6 m]	6 ft. [1.8 m]
	6 ft. [1.8 m]
5 ft. [1.5 m]	6 ft. [1.8 m]
47 ft. [14.3 m]	
15 ft. [4.6 m]	
35 ft. [10.7 m]	
L_1 = 6 ft. [1.8 m]	
20 ft. [6.1 m]	
D = 41 ft. [12.5 m]	
34 ft. [10.4 m]	
L_2 = 36 ft. [11.0 m]	

Exhibit 4

	DAYTIME			NIGHTTIME		
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS
INPUT PARAMETERS						
Vehicles per hour	908	27	21	908	27	21
Speed in MPH	65	65	65	65	65	65
Left angle	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90
NOISE CALCULATIONS						
Reference levels	75.5	81.7	85.2	75.5	81.7	85.2
ADJUSTMENTS						
Flow	21.1	5.9	4.7	21.1	5.9	4.7
Distance	-12.1	-12.1	-12.1	-12.1	-12.1	-12.1
Finite Roadway	0	0	0	0	0	0
Barrier	0	0	0	0	0	0
Grade	0	0	0	0	0	0
Constant	-25	-25	-25	-25	-25	-25
LEQ	59.6	50.5	52.8	59.6	50.5	52.8
DAY LEQ		60.8		NIGHT LEQ	60.8	
LDN			67.2			

ROADWAY	SR-94	
SEGMENT		
ADT	81000	#VALUE!
SPEED	65	
DISTANCE	800	
% A	95	
% MT	2.84	
% HT	2.16	
LEFT	-90	
RIGHT	90	
Ldn	67	
DAY LEQ	61	
% Peak of ADT	10.62%	
Day hour	8602	TO TURN ON, COPY K2 TO J2 TO TURN OFF, ENTER ADTS IN J2
Absorbtive?	no	
Use hour?	Yes	
GRADE dB	0	
	Ldn	Feet
Distance to	70	424
Distance to	65	1339

	DAYTIME			NIGHTTIME		
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS
INPUT PARAMETERS						
Vehicles per hour	998	30	23	998	30	23
Speed in MPH	65	65	65	65	65	65
Left angle	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90
NOISE CALCULATIONS						
Reference levels	75.5	81.7	85.2	75.5	81.7	85.2
ADJUSTMENTS						
Flow	21.6	6.3	5.1	21.6	6.3	5.1
Distance	-12.1	-12.1	-12.1	-12.1	-12.1	-12.1
Finite Roadway	0	0	0	0	0	0
Barrier	0	0	0	0	0	0
Grade	0	0	0	0	0	0
Constant	-25	-25	-25	-25	-25	-25
LEQ	60.0	50.9	53.2	60.0	50.9	53.2

DAY LEQ 61.2 NIGHT LEQ 61.2

LDN 67.6

ROADWAY	SR-94	
SEGMENT		
ADT	89000	#VALUE!
SPEED	65	
DISTANCE	800	
% A	95	
% MT	2.84	
% HT	2.16	
LEFT	-90	
RIGHT	90	
Ldn	68	
DAY LEQ	61	
% Peak of ADT	10.62%	
Day hour	9452	TO TURN ON, COPY K2 TO J2
		TO TURN OFF, ENTER ADTS IN
Absorbtive?	no	
Use hour?	Yes	
GRADE dB	0	

	Ldn	Feet
Distance to	70	465
Distance to	65	1472

	DAYTIME			NIGHTTIME		
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS
INPUT PARAMETERS						
Vehicles per hour	1211	36	28	1211	36	28
Speed in MPH	65	65	65	65	65	65
Left angle	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90
NOISE CALCULATIONS						
Reference levels	75.5	81.7	85.2	75.5	81.7	85.2
ADJUSTMENTS						
Flow	22.4	7.2	6.0	22.4	7.2	6.0
Distance	-12.1	-12.1	-12.1	-12.1	-12.1	-12.1
Finite Roadway	0	0	0	0	0	0
Barrier	0	0	0	0	0	0
Grade	0	0	0	0	0	0
Constant	-25	-25	-25	-25	-25	-25
LEQ	60.8	51.8	54.1	60.8	51.8	54.1

DAY LEQ 62.1 NIGHT LEQ 62.1

LDN 68.5

ROADWAY	SR-94	
SEGMENT		
ADT	108000	#VALUE!
SPEED	65	
DISTANCE	800	
% A	95	
% MT	2.84	
% HT	2.16	
LEFT	-90	
RIGHT	90	
Ldn	68	
DAY LEQ	62	
% Peak of ADT	10.62%	
Day hour	11470	TO TURN ON, COPY K2 TO J2
		TO TURN OFF, ENTER ADTS IN J2
Absorbtive?	no	
Use hour?	Yes	
GRADE dB	0	
	Ldn	Feet
Distance to	70	565
Distance to	65	1786

	DAYTIME			NIGHTTIME		
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS
INPUT PARAMETERS						
Vehicles per hour	1446	43	33	1446	43	33
Speed in MPH	65	65	65	65	65	65
Left angle	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90
NOISE CALCULATIONS						
Reference levels	75.5	81.7	85.2	75.5	81.7	85.2
ADJUSTMENTS						
Flow	23.2	7.9	6.7	23.2	7.9	6.7
Distance	-12.1	-12.1	-12.1	-12.1	-12.1	-12.1
Finite Roadway	0	0	0	0	0	0
Barrier	0	0	0	0	0	0
Grade	0	0	0	0	0	0
Constant	-25	-25	-25	-25	-25	-25
LEQ	61.6	52.5	54.8	61.6	52.5	54.8

DAY LEQ 62.8 NIGHT LEQ 62.8

LDN 69.3

ROADWAY	SR-94	
SEGMENT		
ADT	129000	#VALUE!
SPEED	65	
DISTANCE	800	
% A	95	
% MT	2.84	
% HT	2.16	
LEFT	-90	
RIGHT	90	
Ldn	69	
DAY LEQ	63	
% Peak of ADT	10.62%	
Day hour	13700	TO TURN ON, COPY K2 TO J2
		TO TURN OFF, ENTER ADTS IN
Absorbtive?	no	
Use hour?	Yes	
GRADE dB	0	

	Ldn	Feet
Distance to	70	675
Distance to	65	2133

	DAYTIME			NIGHTTIME		
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS
INPUT PARAMETERS						
Vehicles per hour	1349	37	26	1349	37	26
Speed in MPH	65	65	65	65	65	65
Left angle	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90
NOISE CALCULATIONS						
Reference levels	75.5	81.7	85.2	75.5	81.7	85.2
ADJUSTMENTS						
Flow	22.9	7.2	5.6	22.9	7.2	5.6
Distance	-15.5	-15.5	-15.5	-15.5	-15.5	-15.5
Finite Roadway	0	0	0	0	0	0
Barrier	0	0	0	0	0	0
Grade	0	0	0	0	0	0
Constant	-25	-25	-25	-25	-25	-25
LEQ	57.9	48.4	50.3	57.9	48.4	50.3
DAY LEQ		59.0		NIGHT LEQ	59.0	
LDN			65.4			

ROADWAY	SR-125	
SEGMENT		
ADT	135000	#VALUE!
SPEED	65	
DISTANCE	1750	
% A	95.6	
% MT	2.59	
% HT	1.81	
LEFT	-90	
RIGHT	90	
Ldn	65	
DAY LEQ	59	
% Peak of ADT	9.41%	
Day hour	12704	TO TURN ON, COPY K2 TO J2
		TO TURN OFF, ENTER ADTS IN
Absorbtive?	no	
Use hour?	yes	
GRADE dB	0	
	Ldn	Feet
Distance to	70	607
Distance to	65	1921

	DAYTIME			NIGHTTIME		
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS
INPUT PARAMETERS						
Vehicles per hour	1539	42	29	1539	42	29
Speed in MPH	65	65	65	65	65	65
Left angle	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90
NOISE CALCULATIONS						
Reference levels	75.5	81.7	85.2	75.5	81.7	85.2
ADJUSTMENTS						
Flow	23.4	7.8	6.2	23.4	7.8	6.2
Distance	-15.5	-15.5	-15.5	-15.5	-15.5	-15.5
Finite Roadway	0	0	0	0	0	0
Barrier	0	0	0	0	0	0
Grade	0	0	0	0	0	0
Constant	-25	-25	-25	-25	-25	-25
LEQ	58.5	49.0	50.9	58.5	49.0	50.9

DAY LEQ	59.6	NIGHT LEQ	59.6
LDN		66.0	

ROADWAY	SR-125		
SEGMENT			
ADT	154000	#VALUE!	
SPEED	65		
DISTANCE	1750		
% A	95.6		
% MT	2.59		
% HT	1.81		
LEFT	-90		
RIGHT	90		
Ldn	66		
DAY LEQ	60		
% Peak of ADT	9.41%		
Day hour	14491	TO TURN ON, COPY K2 TO J2	
		TO TURN OFF, ENTER ADTS IN	
Absorbtive?	no		
Use hour?	yes		
GRADE dB	0		
	Ldn	Feet	
Distance to	70	693	
Distance to	65	2191	

	DAYTIME			NIGHTTIME		
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS
INPUT PARAMETERS						
Vehicles per hour	1809	49	34	1809	49	34
Speed in MPH	65	65	65	65	65	65
Left angle	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90
NOISE CALCULATIONS						
Reference levels	75.5	81.7	85.2	75.5	81.7	85.2
ADJUSTMENTS						
Flow	24.1	8.5	6.9	24.1	8.5	6.9
Distance	-15.5	-15.5	-15.5	-15.5	-15.5	-15.5
Finite Roadway	0	0	0	0	0	0
Barrier	0	0	0	0	0	0
Grade	0	0	0	0	0	0
Constant	-25	-25	-25	-25	-25	-25
LEQ	59.2	49.7	51.6	59.2	49.7	51.6

DAY LEQ 60.3 NIGHT LEQ 60.3

LDN 66.7

ROADWAY	SR-125	
SEGMENT		
ADT	191000	#VALUE!
SPEED	65	
DISTANCE	1750	
% A	95.6	
% MT	2.59	
% HT	1.81	
LEFT	-90	
RIGHT	90	
Ldn	67	
DAY LEQ	60	
% Peak of ADT	9.41%	
Day hour	17032	TO TURN ON, COPY K2 TO J2
		TO TURN OFF, ENTER ADTS IN
Absorbtive?	no	
Use hour?	yes	
GRADE dB	0	

	Ldn	Feet
Distance to	70	814
Distance to	65	2575

Exhibit 5

Trinity Church - Education Center - Noise Calculations

Calculations of Sound Level Per ARI Standard 275-97
Carrier HVAC

Group 1 to the Northern Property Line

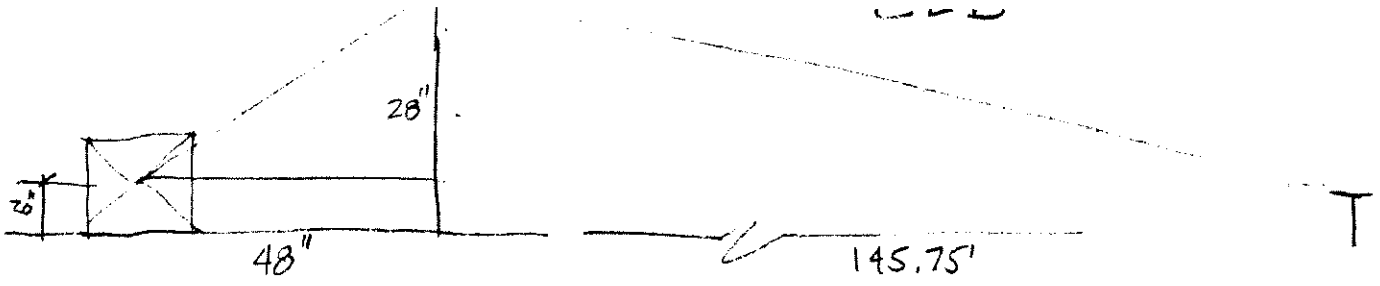
		HVAC 1		HVAC 2		HVAC 3		HVAC 4
Sound Rating Standard		76		76		76		76
Equivelant Location Factor	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface
Sound Hood/Blanket	-	0	-	0	-	0	-	0
Barrier Shielding Factor	-	0	-	0	-	0	-	0
Sound Path Factor	-	0	-	0	-	0	-	0
Distance Factor	-	34.5 D=72'	-	35 D=75'	-	35.25 D=78'	-	35.5 D=80'
Estimated A-Wieghted Sound Pressure Level		44.5		44		43.75		43.5
Combined A-Weighted Sound Pressure Level		50						

Group 2 to the Northern Property Line

		HVAC 1		HVAC 2		HVAC 3		HVAC 4
Sound Rating Standard		76		76		76		76
Equivelant Location Factor	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface
Sound Hood/Blanket	-	0	-	0	-	0	-	0
Barrier Shielding Factor	-	0	-	8 L=1.5'	-	8 L=1.5'	-	8 L=1.5'
Sound Path Factor	-	0	-	0	-	0	-	0
Distance Factor	-	38.5 D=113'	-	39 D=117'	-	39 D=120'	-	39.5 D=124'
Estimated A-Wieghted Sound Pressure Level		40.5		32		32		31.5
Combined A-Weighted Sound Pressure Level		42						

Group 2 to the Western Property Line

		HVAC 1		HVAC 2		HVAC 3		HVAC 4	
Sound Rating Standard		76		76		76		76	
Equivelant Location Factor	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface	
Sound Hood/Blanket	-	0	-	0	-	0	-	0	
Barrier Shielding Factor	-	0	-	0	-	0	-	0	
Sound Path Factor	-	0	-	0	-	0	-	0	
Distance Factor	-	39.75	127 -	39.75	128 -	40	129 -	40	130
Estimated A-Wieghted Sound Pressure Level		39.25		39.25		39		39	
Combined A-Weighted Sound Pressure Level		45							



$\sqrt{28^2 + 48^2} = 55.5698'' = 4.6308'$

$\sqrt{25^2 + 145.75^2} = 147.8785'$

$$\begin{array}{r} 147.8785' \\ + \quad 4.6308 \\ \hline 152.5093 \end{array}$$

$\sqrt{22.666^2 + 149.75^2} = 151.4556$

$$\begin{array}{r} 152.\overset{9}{5}0\overset{8}{9}3 \\ -151.4556 \\ \hline 1.0537 = L = \end{array}$$

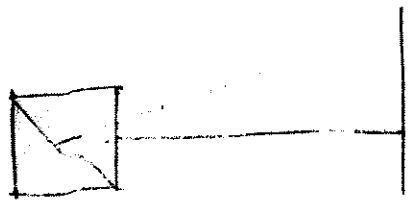
$\sqrt{28^2 + 99^2} = 102.8834'' = 8.5736'$

$\sqrt{25^2 + 145.75^2} = 147.8785''$

$$\begin{array}{r} 147.8785 \\ \div\ 8.5736 \\ \hline 156.4521 \end{array}$$

$\sqrt{22.666^2 + 154} = 155.6591$

$$\begin{array}{r} 156.4521 \\ -\ 155.6591 \\ \hline 0.7930 \end{array}$$



T

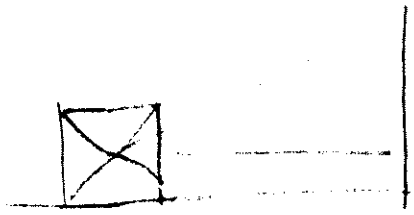
$\sqrt{28^2 + 150^2} = 152.5910'' = 12.7195$

$\sqrt{25^2 + 145.75^2} = 147.8785'$

$$\begin{array}{r} 147.8785 \\ +\ 12.7195 \\ \hline 160.5980 \end{array}$$

$\sqrt{22.666^2 + 158.25} = 159.8650$

$$\begin{array}{r} 160.5980 \\ 159.8650 \\ \hline 0.7330 \end{array}$$



T

$\sqrt{28^2 + 188^2} = 190.0737' = 15.8395$

$\sqrt{25^2 + 145.75^2} = 147.8785'$

$$\begin{array}{r} 147.8785 \\ +\ 15.8375 \\ \hline 163.7160 \end{array}$$

$\sqrt{22.666^2 + 161.416^2} = 162.9996$

$$\begin{array}{r} 163.7160 \\ -\ 162.9996 \\ \hline 0.7164 \end{array}$$

Trinity Church - Noise Calculations - Trailer 1 Bard HVAC

Location	Noise Source	Distance (Feet)	Reference Noise Level @ 50 ft.	Noise Level at Location (dBA)	Noise Level Reduction Due to Distance
Expanded values					
Northern Property Boundary	Bard HVAC	109.0	50.0	43.2	6.8
Perpendicular to Unit	Bard HVAC	119.0	50.0	42.5	7.5
	Combined			45.9	
Rounded values					
Northern Property Boundary	Bard HVAC	109	50	43	7
Perpendicular to Unit	Bard HVAC	119	50	42	8
	Combined			46	
Expanded values					
126 Feet West of Eastern	Bard HVAC	119.0	50.0	42.5	7.5
Property Boundary along	Bard HVAC	129.0	50.0	41.8	8.2
Northern Property Boundary	Combined			45.1	
Rounded values					
126 Feet West of Eastern	Bard HVAC	119	50	42	8
Property Boundary along	Bard HVAC	129	50	42	8
Northern Property Boundary	Combined			45	

Point Source Equation:
L1 = (L2)-(20Log(D/50))
Where:
L1 = Noise Level at Specific Location
L2 = Reference Noise Level @ 50 ft.
D = Distance from Source to Receiver Location

Trinity Church - Noise Calculations - W1 and W3 Premit

Location	Noise Source	Distance (Feet)	Reference Noise Level @ 5 ft.	Noise Level at Location (dBA)	Noise Level Reduction Due to Distance
Expanded values					
Western Property Boundary	ComPacII (W1)	48.0	77.0	57.4	19.6
Perpendicular to Unit	ComPacII (W1)	48.0	77.0	57.4	19.6
	Combined			60.4	
Rounded values					
Western Property Boundary	ComPacII (W1)	48	77	57	20
Perpendicular to Unit	ComPacII (W1)	48	77	57	20
	Combined			60	
Expanded values					
Western Property Boundary	Carrier Nextel (W3)	80.0	67.0	42.9	24.1
Perpendicular to Unit	Carrier Nextel (W3)	87.0	67.0	42.2	24.8
	Combined			45.6	
Rounded values					
Western Property Boundary	Carrier Nextel (W3)	80	67	43	24
Perpendicular to Unit	Carrier Nextel (W3)	87	67	42	25
	Combined			46	
Expanded values					
Northern Property Boundary	ComPacII (W1)	178.0	77.0	46.0	31.0
Perpendicular to Unit	ComPacII (W1)	184.0	77.0	45.7	31.3
	Combined			48.8	
Rounded values					
Northern Property Boundary	ComPacII (W1)	178	77	46	31
Perpendicular to Unit	ComPacII (W1)	184	77	46	31
	Combined			49	
Expanded values					
Northern Property Boundary	Carrier Nextel (W3)	123.0	67.0	39.2	27.8
Perpendicular to Unit	Carrier Nextel (W3)	129.0	67.0	38.8	28.2
	Combined			42.0	
Rounded values					
Northern Property Boundary	Carrier Nextel (W3)	123	67	39	28
Perpendicular to Unit	Carrier Nextel (W3)	129	67	39	28
	Combined			42	

Point Source Equation:
L1 = (L2)-(20Log(D/5))
Where:
L1 = Noise Level at Specific Location
L2 = Reference Noise Level @ 5 ft.
D = Distance from Source to Receiver Location

Trinity Church - Noise Calculations - W1 and W3 Premit

Location	Noise Source	Distance (Feet)	Reference Noise Level @ 5 ft.	Noise Level at Location (dBA)	Noise Level Reduction Due to Distance
Expanded values					
152 Feet South of Northern	ComPacII (W1)	54.0	77.0	56.3	20.7
Property Boundary along	ComPacII (W1)	54.0	77.0	56.3	20.7
Western Property Boundary	Combined			59.3	
Rounded values					
152 Feet South of Northern	ComPacII (W1)	54	77	56	21
Property Boundary along	ComPacII (W1)	54	77	56	21
Western Property Boundary	Combined			59	
Expanded values					
152 Feet South of Northern	Carrier Nextel (W3)	83.0	67.0	42.6	24.4
Property Boundary along	Carrier Nextel (W3)	91.0	67.0	41.8	25.2
Western Property Boundary	Combined			45.2	
Rounded values					
152 Feet South of Northern	Carrier Nextel (W3)	83	67	43	24
Property Boundary along	Carrier Nextel (W3)	91	67	42	25
Western Property Boundary	Combined			45	
Combined W1 and W3				**60**	
Expanded values					
69 Feet East of Westerm	ComPacII (W1)	179.0	77.0	45.9	31.1
Property Boundary along	ComPacII (W1)	182.0	77.0	45.8	31.2
Northern Property Boundary	Combined			48.9	
Rounded values					
69 Feet East of Westerm	ComPacII (W1)	179	77	46	31
Property Boundary along	ComPacII (W1)	182	77	46	31
Northern Property Boundary	Combined			49	
Expanded values					
69 Feet East of Westerm	Carrier Nextel (W3)	124.0	67.0	39.1	27.9
Property Boundary along	Carrier Nextel (W3)	128.0	67.0	38.8	28.2
Northern Property Boundary	Combined			42.0	
Rounded values					
69 Feet East of Westerm	Carrier Nextel (W3)	124	67	39	28
Property Boundary along	Carrier Nextel (W3)	128	67	39	28
Northern Property Boundary	Combined			42	
Combined W1 and W3				**50**	

Point Source Equation:
L1 = (L2)-(20Log(D/5))
Where:
L1 = Noise Level at Specific Location
L2 = Reference Noise Level @ 5 ft.
D = Distance from Source to Receiver Location

Exhibit 6

Attachment to the Trinity Presbyterian Church MUP Application Case # P69-129W[4]
8-15-04

Overall the Church campus is open seven days per week. The following lists the hours of operation, and an estimate of the employees, students, church attendees, and community or local meeting attendance. The numbers are projected through Phase Three.

Building	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Sanctuary 10:30 AM Occasional use Sunday Aft Evening/weddings/funerals	120	0	0	0	0	0	0
Williams Hall 9:30 AM 4:00-7:00 PM 7:00-9:00 PM	90	0 20	0 20	200	0 20	0 20	0
Christian Education Bldg Employees 8:00-4:00 K-6 Students 8:00-3:30 Preschool 8:45-noon Sunday School	 0 0 0 40	 30 146 52 0	 30 146 52 0	 30 146 52 0	 30 146 52 0	 30 146 52 0	 0 0 0 0
Adult Center/Music Office (Replacement Bldg) 9:00-3:00 PM 7:00-9:00 PM	20 0	25 25	30 0	40 0	0 30	0 25	0 0
Administration Bldg 9:00-4:00 PM 9:00- Noon Various Part time	0 0 0	3 1 8	3 1 8	3 1 8	3 1 8	3 1 8	0 0 0
Education Building (New) 5th – 8th grades 8:00 –3:00 Meeting Rooms 7:00-9:00	 0 0	 44 20	 44 20	 44 20	 44 20	 44 20	 0 0
Gymnasium (New) 8:00-3:00 3:30-8:00	 0 35	 Note 1 35	 Note 1 35	 Note 1 35	 Note 1 35	 Note 1 35	 35 35
Totals In and Out for all Hours Listed above	305	409	389	579	389	389	Note 3

Note 1 – The count for the Gym is included in the K-8 population
Note 2 – This total includes some of the children for the school, so are effectively double counted.
Note 3 – There are periodic special events that are not shown above occurring on Saturday/Sunday like funerals, weddings and other community events.

Exhibit 7

	Room	Make	Model	
Church	Ward Center	Honeywell	T874D1165	12 Hour Timer; HVAC
Church	Library	Honeywell	T874G1246	1 Hour Timer; HVAC
Church	Sanctuary	Honeywell	T874G1246	12 Hour Timer; HVAC
Church	Church Office	Honeywell	T874G1246	12 Hour Timer; HVAC
Church	Church Office	Honeywell	T874G1246	12 Hour Timer; HVAC
Church	Williams Hall	Honeywell	T8001C1019	12 Hour Timer; HVAC
Church	Williams Hall	Robert Shaw	D87005	12 Hour Timer; Wall heater
Church	Williams Hall	Robert Shaw	D87005	12 Hour Timer; Wall heater
Church	Williams Hall	Honeywell	T872A10481	2 Hour Timer; Wall heater
Church	1	Honeywell	T8600	8:00 am - 3:00 pm Monday - Friday; 8:00 am - 12 p.m Sunday
School	3	Honeywell	T8600	8:00 am - 3:00 pm Monday - Friday; 8:00 am - 12 p.m Sunday
School	6	Honeywell	T8600	8:00 am - 3:00 pm Monday - Friday; 8:00 am - 12 p.m Sunday
School	7A	Honeywell	T8600	8:00 am - 3:00 pm Monday - Friday; 8:00 am - 12 p.m Sunday
School	7B	Honeywell	T8600	8:00 am - 3:00 pm Monday - Friday; 8:00 am - 12 p.m Sunday
School	9	Honeywell	T8600	8:00 am - 3:00 pm Monday - Friday; 8:00 am - 12 p.m Sunday
School	12	Mitsubishi	PAR-JC241KUS	8:00 am - 3:00 pm Monday - Friday; 8:00 am - 12 p.m Sunday
School	13	Marvair	T874R111	8:00 am - 3:00 pm Monday - Friday; 8:00 am - 12 p.m Sunday
School	14	Marvair	T874R111	8:00 am - 3:00 pm Monday - Friday; 8:00 am - 12 p.m Sunday

Exhibit 8

Trinity Church - Ward Center - Noise Calculations
Carrier HVAC

Calculations of Sound Level Per ARI Standard 275-97

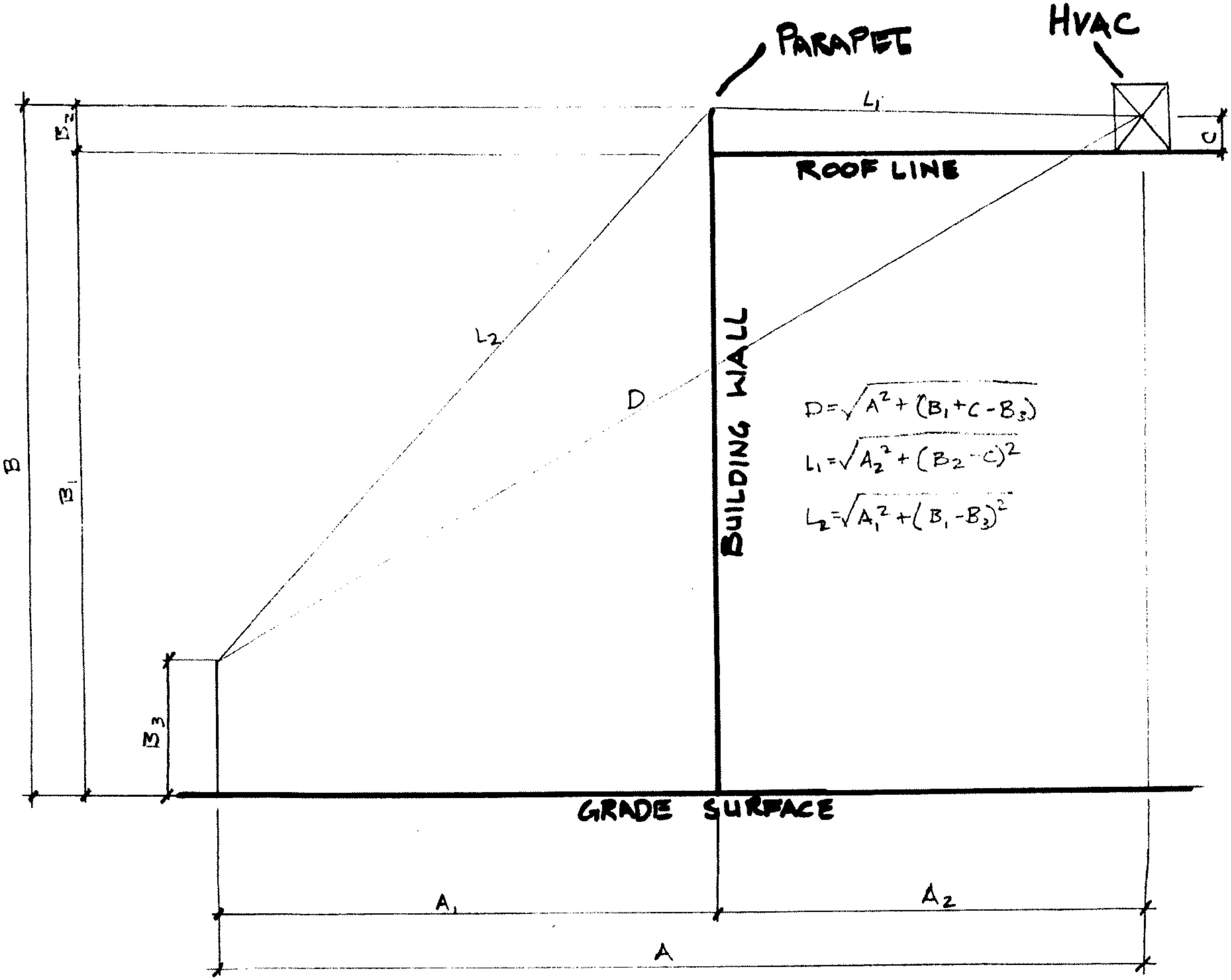
		Unit 1			Unit 2	
Sound Rating Standard		76	dB		76	dB
Equivelant Location Factor	+	3	Single Surface	+	3	Single Surface
Barrier Shielding Factor	-	10	L=2'	-	11	L=2.5'
Sound Path Factor	-	0		-	0	
Distance Factor	-	28	D=35'	-	26.5	D=28.5'
Estimated A-Wieghted Sound Pressure Level		41	dBA		41.5	dBA
Combined A-Weighted Sound Pressure Level		44	dBA			

Exhibit 9

Trinity Church - Noise Calculations - Trailer 1 and 2 Bard HVAC

Location	Noise Source	Distance (Feet)	Reference Noise Level @ 50 ft.	Noise Level at Location (dBA)	Noise Level Reduction Due to Distance
Expanded values					
Northern Property Boundary	2 Bard HVAC (Trailer 1)	135.0	53.0	44.4	8.6
Perpendicular to Units	2 Bard HVAC (Trailer 2)	165.0	53.0	42.6	10.4
Rounded values					
Northern Property Boundary	2 Bard HVAC (Trailer 1)	135	53	44	9
Perpendicular to Units	2 Bard HVAC (Trailer 2)	165	53	43	10
Expanded values					
162 Feet West of Eatern	2 Bard HVAC (Trailer 1)	174.0	53.0	42.2	10.8
Property Boundary along	2 Bard HVAC (Trailer 2)	185.0	53.0	41.6	11.4
Northern Property Boundary	Combined			44.9	
Rounded values					
162 Feet West of Eatern	2 Bard HVAC (Trailer 1)	174	53	42	11
Property Boundary along	2 Bard HVAC (Trailer 2)	185	53	42	11
Northern Property Boundary	Combined			45	

Point Source Equation:
L1 = (L2)-(20Log(D/50))
Where:
L1 = Noise Level at Specific Location
L2 = Reference Noise Level @ 50 ft.
D = Distance from Source to Receiver Location


PARAPET
HVAC
L1
C
B2
ROOF LINE
L2
D
BUILDING WALL
B
B1
B3
D=√(A^2+(B1+C-B3))
L1=√(A2^2+(B2-C)^2)
L2=√(A1^2+(B1-B3)^2)
GRADE SURFACE
A1
A2
A

UNIT 1 WARD CENTER

$A = 33.\overline{333}'$
$A_1 = 15.\overline{333}'$
$A_2 = 18'$

$B = 14.5'$
$B_1 = 13'$
$B_2 = 1.5'$
$* B_3 = 5' - 2' = 3$

$C = 1.25'$

$L_1 + L_2 - D = L$

$L_1 = \sqrt{A_2^2 + (B_2 - C)^2}$

$L_1 = \sqrt{18^2 + (1.5 - 1.25)^2} = 18.00173603$

$L_2 = \sqrt{A_1^2 + (B - B_3)^2}$

$L_2 = \sqrt{15.\overline{333}^2 + (14.5 - 3)^2} = 19.1664$

$D = \sqrt{A^2 + (B_1 + C - B_3)^2}$

$D = \sqrt{33.\overline{333}^2 + (13 + 1.25 - 3)^2} = 35.180269\,88$

$L_1 + L_2 - D = 1.987866146 = L = 10$

* THE HIEGHT OF THE RECEIVER WAS LOWERED BY 2 FEET TO REFLEC THE LOWER ELEVATION OF THE PROPERTY LINE TO THE WARD CENTE BUILDING.

UNIT 2 WARD CENTER

$A = 27'$
$A_1 = 9'$
$A_2 = 18'$

$B = 14.5'$
$B_1 = 13'$
$B_2 = 1.5'$
$B_3 = 5'$

$C = 1.25'$

$L_1 + L_2 - D = L$

$L_1 = \sqrt{A_2^2 + (B_2 - C)^2}$

$L_1 = \sqrt{18^2 + (1.5 - 1.25)^2} = 18.00173603$

$L_2 = \sqrt{A_1^2 + (B - B_3)^2}$

$L_2 = \sqrt{9^2 + (14.5 - 5)^2} = 13.08625233$

$D = \sqrt{A^2 + (B_1 + C - B_3)^2}$

$L = \sqrt{27^2 + (13 + 1.25 - 5)^2} = 28.54054134$

$L_1 + L_2 - D = 2.54[illegible]02. = L = 11$

Exhibit 10

Trinity Church - Education Center - Noise Calculations
Calculations of Sound Level Per ARI Standard 275-97
Carrier HVAC

Group 1 to the Northern Property Line

		HVAC 1		HVAC 2		HVAC 3		HVAC 4
Sound Rating Standard		76		76		76		76
Equivelant Location Factor	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface
Sound Hood/Blanket	-	0	-	0	-	0	-	0
Barrier Shielding Factor	-	0	-	0	-	0	-	0
Sound Path Factor	-	0	-	0	-	0	-	0
Distance Factor	-	34.5 D=72'	-	35 D=75'	-	35.25 D=78'	-	35.5 D=80'
Estimated A-Wieghted Sound Pressure Level		44.5		44		43.75		43.5
Combined A-Weighted Sound Pressure Level		50						

Group 2 to the Northern Property Line

		HVAC 1		HVAC 2		HVAC 3		HVAC 4
Sound Rating Standard		76		76		76		76
Equivelant Location Factor	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface
Sound Hood/Blanket	-	0	-	0	-	0	-	0
Barrier Shielding Factor	-	0	-	8 L=1.5'	-	8 L=1.5'	-	8 L=1.5'
Sound Path Factor	-	0	-	0	-	0	-	0
Distance Factor	-	38.5 D=113'	-	39 D=117'	-	39 D=120'	-	39.5 D=124'
Estimated A-Wieghted Sound Pressure Level		40.5		32		32		31.5
Combined A-Weighted Sound Pressure Level		42						

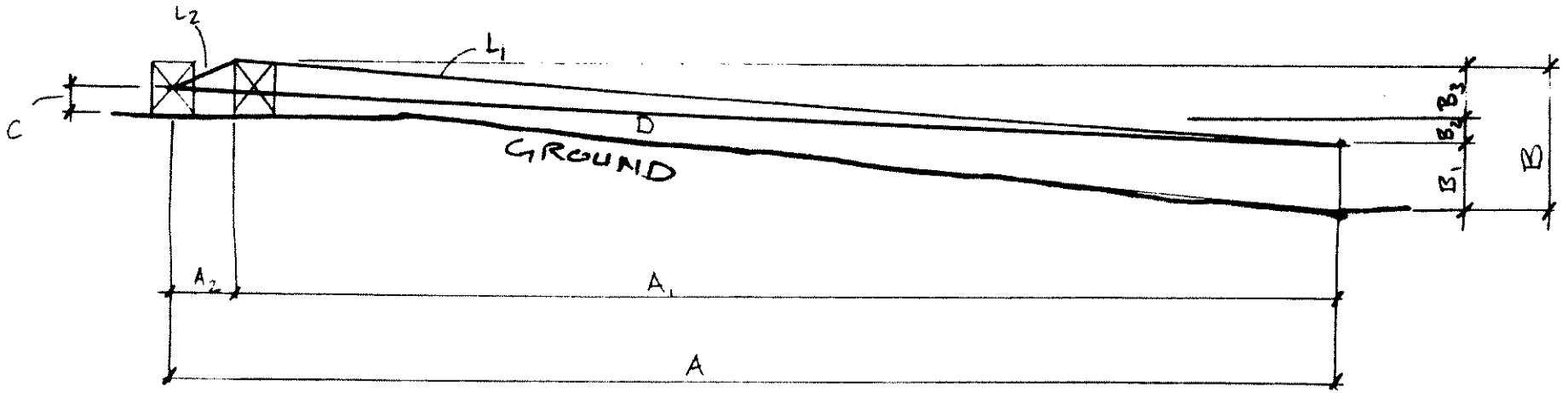
Group 2 to the Western Property Line

		HVAC 1		HVAC 2		HVAC 3		HVAC 4	
Sound Rating Standard		76		76		76		76	
Equivelant Location Factor	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface	+	3 Single Surface	
Sound Hood/Blanket	-	0	-	0	-	0	-	0	
Barrier Shielding Factor	-	0	-	0	-	0	-	0	
Sound Path Factor	-	0	-	0	-	0	-	0	
Distance Factor	-	39.75	127 -	39.75	128 -	40	129 -	40	130
Estimated A-Wieghted Sound Pressure Level		39.25		39.25		39		39	
Combined A-Weighted Sound Pressure Level		45							

$$L_1 = \sqrt{A_1^2 + (B_2 + B_3)^2}$$

$$L_2 = \sqrt{A_2^2 + (B_3 - C)^2}$$

$$D = \sqrt{A^2 + (B_2 + C)^2}$$



ARI STANDARD 275-97 SHIELDING CALCULATIONS
GROUP 1 EDUCATION CENTER

HVAC 2

$A = 75'$
$A_1 = 72'$
$A_2 = 4'$

$L_1 = \sqrt{72^2 + (3+2.5)^2} = 72.20976388$

$L_2 = \sqrt{4^2 + (2.5-1.25)^2} = 4.190763654$

$B = 10.5$
$B_1 = 5'$
$B_2 = 5'$
$B_3 = 2.5'$

$D = \sqrt{75^2 + (3+1.25)^2} = 75.12032015$

$L_1 + L_2 - D = L = 1.280207383'$

$C = 1.25'$

SHIELDING FACTOR (SF) = 8

HVAC 3

$A = 78.5$
$A_1 = 75.5$
$A_2 = 4'$

$L_1 = \sqrt{75.5^2 + (3+2.5^2)} = 75.70006605$

$L_2 = \sqrt{4^2 + (2.5-1.25)^2} = 4.190763654$

$B = 10.5'$
$B_1 = 5'$
$B_2 = 3'$
$B_3 = 2.5'$

$D = \sqrt{78.5 + (3+1.25)^2} = 78.61496359$

$L_1 + L_2 - D = L = 1.275866115'$

$C = 1.25$

SF = 8

HVAC 4

$A = 82'$
$A_1 = 79'$
$A_2 = 4'$

$L_1 = \sqrt{79^2 + (3+2.5)^2} = 79.19122926$

$L_2 = \sqrt{4^2 + (2.5-1.25)^2} = 4.190763654$

$B = 10.5'$
$B_1 = 5'$
$B_2 = 3'$
$B_3 = 2.5'$

$D = \sqrt{82^2 + (3+1.25)^2} = 82.11006333$

$L_1 + L_2 - D = L = 1.271924585'$

$C = 1.25'$

SF = 8

ARI STANDARD 275-97 SHIELDING CALCULATIONS
GROUP 2 EDUCATION CENTER

HVAC 6

$A = 117'$
$A_1 = 114'$
$A_2 = 4'$

$B = 15'$
$B_1 = 5'$
$B_2 = 10'$
$B_3 = 2.5'$

$C = 1.25'$

$L_1 = \sqrt{114^2 + (10 + 2.5)^2} = 114.6852595$

$L_2 = \sqrt{4^2 + (2.5 - 1.25)^2} = 4.190763654$

$D = \sqrt{117^2 + (10 - 1.25)^2} = 117.326734$

$L_1 + L_2 - D = L = 1.547289159$

$SF = 8$

HVAC 7

$A = 121$
$A_1 = 118$
$A_2 = 4'$

$B = 15'$
$B_1 = 5'$
$B_2 = 10'$
$B_3 = 2.5'$

$C = 1.25'$

$L_1 = \sqrt{118^2 + (10 + 2.5)^2} = 118.6602292$

$L_2 = \sqrt{4^2 + (2.5 - 1.25)^2} = 4.190763654$

$D = \sqrt{120^2 + (10 - 1.25)^2} = 121.3159614$

$L_1 + L_2 - D = L = 1.53503144$

$SF = 8$

HVAC 8

$A = 124'$
$A_1 = 121'$
$A_2 = 4'$

$B = 15'$
$B_1 = 5'$
$B_2 = 10'$
$B_3 = 2.5'$

$C = 1.25'$

$L_1 = \sqrt{121^2 + (10 + 2.5)^2} = 121.6439477$

$L_2 = \sqrt{4^2 + (2.5 - 1.25)^2} = 4.190763654$

$D = \sqrt{124^2 + (10 - 1.25^2} = 124.3083364$

$L_1 + L_2 - D = L = 1.526374898$

$SF = 8$

February 16, 2005

County of San Diego
Department of Planning and Land Use
5201 Ruffin Road, Suite B
San Diego CA 92123-1666

Attention: Dag Bunnemeyer

Re: Trinity Presbyterian Church of Spring Valley, CP 328, Case Number: P69-129W4, KIVA# 3301 69-129-06; First Iteration Review of Initial Studies/ Information

Dear Mr. Bunnemeyer:

In response to your letter of October 22, 2004, Trinity Presbyterian Church of Spring Valley, CP 328, Case Number: P69-129W4, KIVA# 3301 69-129-06; First Iteration Review of Initial Studies/Information, the following materials are enclosed:

- One copy of the October 22, 2004 letter described above.
- Two copies of the revised noise analysis for the project in strikeout/underline format.

Further, as requested in your October 22, 2004 letter, the following table describes the location of the response to each of the comments in your letter.

Comment	Information Requested	Where addressed in revised report
1	In the "Applicable Regulations" section on page 2, include the portion of the Noise Element Portion that addresses daytime noise "sensitive" uses such as classrooms associated with these church facilities and the exemption Section (1) under Policy 4b.	Applicable Regulations, Pages 2 and 3
2	Estimate of peak hour condition for traffic noise at the project site and an explanation of how weekday and weekend temporal volumes compare with peak hour and nighttime quiet conditions, the discussion should include phasing.	Calculations and Results, Existing Conditions, Page 11 and 12

Comment	Information Requested	Where addressed in revised report
3	Include all approved wireless communication facilities onsite and update the current configuration of all noise generating equipment onsite.	Information and Data Collected, Site Description Page 5, and Calculations and Results, Existing Conditions, Pages 13 and 14
3	Evaluate another permit modification (W5) that intends to install a standby generator in the vicinity of permit modification W1.	Calculations and Results, Existing Conditions, Pages 15 and 16
4	Clarify zoning of adjacent properties and identify that the properties in the southeast quadrant of the project site are zoned RS3, while all other properties are zoned RS7.	Adjacent Land Uses and Noise Sensitive Receptors, Page 6
5	Include noise measurements of onsite activities, in particular include the classrooms that are being upgraded and repositioned. Also include characterization of onsite telecommunications facilities to compare against freeway noise.	Noise Measurements, Page 8 and Calculations and Results, Existing Conditions, Pages 9, 10, and 11
6	Include a discussion of the schedule of activities that considers the potential noise impacts to the neighborhood from parking lot activities after 10 pm or before 7 am.	Calculations and Results, Existing Conditions, Pages 14 and 15
7	Include a reference for the automatic timers and an exhibit that includes manufacturer and model.	Proposed Project and Noise Impacts, Page 16 and Exhibit 7
8	Include an analysis of the potential future off-site traffic noise impacts from SR-94 for the noise sensitive day use area proposed for the project site.	Calculations and Results, Existing Conditions, Page 11 and 12
9	Expand the analysis for the HVAC equipment to consider the effect of parking lots or "hard-site" conditions. With the potential increase from ground reflection as well as adjacent walls.	The analysis contained in the original report used hard-site conditions in all evaluations and included noise increases due to reflective surfaces.

Comment	Information Requested	Where addressed in revised report
9	Justify the 8-decibel reduction from neighboring cabinets for the Education Center by addressing flanking noise and the geometric arrangement of cabinets in parallel rows. Include an equipment layout to be suggested for arrangement of HVAC units around the Education Center. Include the location of all fixed HVAC sources in the layout.	Proposed Project and Noise Impacts, Noise generated from Operation, Phase III, Page 19
10	Modify Table 3 to include existing ambient noise levels at the same evaluation point for HVAC units, and clarify which phase is being assessed. Include an exhibit that identifies each evaluation point.	Modifications made, Table in revised report is Table 10
11	Summarize project design elements that allow the project to comply with county noise regulations. Summary will include specific equipment criteria, limited hours of operation and any noise control elements. Conclusion should include both regularly scheduled events and special event, locations, and maximum allowable attendance levels.	Property Line Noise Levels, Page 20 and Conclusions, Page 22

Please contact me at (619) 448-2129 if you have any questions.

Yours truly,

Mr. Carl Starrett II
1941-C Friendship Drive
El Cajon, CA 92020